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To only play games on a Commodore computer is like asking Albert Einstein to work out the square root of four.

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LETTERS PAGE

Dataview address

I READ with great interest a news item under the heading of "DATAVIEW VALUE" in the September issue of *Commodore Horizons*.

I shall be grateful if you could correct two points — first both the products mentioned in the news item are published by a new company, Dataview Windows Limited and secondly the address of Dataview Windows is Limited is Radio House, Elm Street, Colchester, Essex. Telephone No (0206) 89414. Alan Ray Managing Director Dataview Windows Ltd

Peaks(44). Follow this by starting NEW then load or open in selected system of program, then enter again in DIRECT MODE Peaks(5), 1 Peaks(8).

Where LIST is now carried out the two versions of programs will never merge and can be RUN as one program.

This is also possible on the Vic 20 if you first PressPeaks(44) and PressPeaks(44) then enter the first DIRECT MODE Peaks(5) command to proceed. Follow this by entering second version of program and then repeat again in DIRECT MODE Peaks(5)(5) Peaks(4)(5) where X and Y are the values obtained previously.

The last members for the two systems must be consecutive or any overlapping will cause — duplicate reading the system.
Kyrin J. Morice
Walsfield
Walsford

I don't expect you to print this letter in your magazine and none of you do I won't be it, because after all the point of making my letter I will not be buying your magazine ever again.

John Angley
Mr D. Angley
Parr Highway
ALL Commodore Horizons Subscribers His programs are received on cassette, loaded, checked, printed out, and the printed is reproduced photographically. This doesn't leave much room for mistakes. Since Mr Angley won't be writing them, perhaps one of his submitters will replace this in the

We just don't like to take our own transport

Castlepoint club

MANY THANKS for your exciting magazine. It's a pleasure to have trouble free letters.

I have only been taking your mag for three months but I am impressed to see about back copies. When did you start?

I would be pleased if you could restore our club. It's just been formed and we'll like more members. It's the Castlepoint Commodore Computer Club.

The club offers a rental library, bulk purchase offers, swaps and product reviews by a brilliant young man, John Crockett.

Membership is £5.00 per year, £3.00 if you are over 60, and 20p for mailing which is fortnightly. J. Crockett

115 Church Parade
Gower Island
Dorset

ALL BACK-issues of *Commodore Horizons*, apart from the first, Dec 83/Jan 84, are available from our subscriptions department.

This is the chance to air your views — send your tips, complaints and compliments to Letters Page, *Commodore Horizons*, 12-12 Little Newport Street, London WC2N 6LG

Merge solved?

A SUGGESTION I would like to make, regarding a query I saw in your Answer Back section regarding merging of images so that it is possible to overcome this problem without the need to purchase any specific software.

On the 64 carry out the following — Load or open in first section of program then enter in DIRECT MODE Peaks(4), Peaks(5), Peaks(8).

Mister Angry

HAVING purchased your magazine for some months I devoted in my issue of your program for my Vic 20. Having spent a number of hours going and checking they still won't run. I have checked them over and over again and I am 100% sure that they are as they appear in your magazine. I have used them on other machines and all I get is a mass of symbols on the screen.

Blush blush

IN RESPONSE to a query from a J D W. Barker regarding a merge routine for his '64', we recommended a software package from Supersoft.

As the reader was obviously 'into' writing his own programs, I was surprised that you did not recommend the excellent book *The Working Commodore 64* by David Langmont, published by Saunders Books.

Among the routines listed are 'MERGE' and 'TELLITE'. At a cost of £2.95 this represents a much greater value than any software package, particularly as there are many other useful routines on the book. B. J. Crockett
BPPD 12



Making micro music

THE CAPITAL Reggae Information Centre, part of the Major Educational Enterprises Programme, is producing a booklet for music teachers and students entitled "Microcomputer and Music Education".

Following an introduction to the subject, the booklet will contain a list of useful software and hardware currently available, with a full section on the Commodore machines.

Organiser Nick Pickett said that, despite the Commodore machines not being approved for use in schools by the Department of Education and Educational Engineering of the latter London Education Authority, any information on the subject would be gratefully received.

To contribute information or get hold of the booklet, which should be available in September, contact Nick in the Music Department, Middlesex Polytechnic, Rose Park, Cockfosters, Herts.

Mermaid launches disk doctor

NEW COMPANY: Mermaid Software has launched the first of a series of educational and utility programs.

Diskdoctor, is compatible with the 1541 disk drive and all 80 floppy drives including the Plusdrive II (7083).

It's a disk repair program which will remove corrupted data, recover data from disks with slight physical damage, and allows the user to be on top of on a new disk which is given an identical header.

Mermaid's Harold Wolpert describes the utility as "an invaluable utility for serious disk users saving hours of work in cases where disks are damaged or more by recovery use."

Diskdoctor comes with a free disk, as well as the main

GAME CREATOR, from Mermaid, is the latest in a line of programs designed to let non-programmers produce games.

Launched in the PCW show, the 64 Games Creator is written by David and Richard Durrant, authors of the Colour Games Designer for the Vic 20.

Games Creator comes with three games ready to play, Bowlers, Wizard, Patrol and Snake 16, which cover most platforms and Scramble-type scenarios. The program is menu-driven, and allows you to specify the type of character, movement patterns,



backgrounds showing various effects, music, sprite sheet options and so on. Mermaid's Jon Mark

describes commented "Games design languages like GCP's Scope are excellent in their way, but for users who don't want to learn a new language we've put together Games Creator. We think it will be a big success with games players of around 12 years old and upwards, but we've also found that it's a help to more advanced programmers who want to try out games ideas before writing original programs."

Games Creator costs £12.95 on cassette and £19.95 on disk, contact Mermaid, The Mermaid Group, Hatfield, Herts, GU8 5JH.

Eureka! — £25K reward

EUREKA! is an epic arcade adventure from new company Demosco, looks likely to set new standards of complexity — and there's a £25,000 "reward" at stake for the first person to complete it.

Demosco's Whitley — grandson of author Douglas — and Mark Serfaty have set up the company with the aim of "showing the talents of many people who work at art". Eureka! consists of five adventure games, written by Fighting Fantasy author Ian Livingstone, and five arcade games. All the coding has been done by the Bluepoint programmers of Audioheads Software.

The game is released in a single £14.95 package on October 1st, and any mail orders made before that date will have a guaranteed delivery date, as an incentive first. Claims to all participants Eureka! will be released to shops at a later date.

The epic contains around 200k of coding, and operates on a modified principle. Completing each article section allows access to the next part of the adventure, which is set in five different periods of history — Pre-historic Britain, Roman Britain, Celtic Britain, World War Two Germany, and the present day Corvallis.

Your mission is to find the shards of a shattered magic crystal, and the reward of

£25,000 will be paid to the first person to achieve this.

Demosco's Whitley said "as to keeping future plans fairly secret, but some of my grandfather's books would lend themselves well to computer games, and we might also do something based on a cartoon character. There's very little limit to the ability of Audioheads Software's programmers."

Contact Demosco through Future PB, 127 Fawcett Park Road, Putney, London SW15 2NU, phone 01-497 1036.



Doctadisk — available



Whitley & Serfaty — Eureka!

The Cheetah, the RAT and the Interpod

64

Keywords: Macrolactonized polymers; PEG-PT; PEG-PPG

This is a selection of some of the very best research by the world's leading scientists. The book is organized into 1000 pages, each page containing a summary of the findings of a particular study. The book is organized into 1000 pages, each page containing a summary of the findings of a particular study. The book is organized into 1000 pages, each page containing a summary of the findings of a particular study.

What is the most powerful topic to discuss outside of the job? You can bring the program flexibility, ongoing support and others. Please don't forget to put up with your own "I" moment at the end of the interview.

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and History for business. Wants
the Constitution and Basic
principles. This is a rare opportunity
and must be taken immediately. Very
rare.

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maximum ease — no waiting time

manages full-screen pages that are more spacious than most. On the left, a vertical pane displays a sidebar with a list of links to various sections of the site. The main content area is large and clear, with a search bar at the top right. The overall design is clean and professional, with a focus on readability and ease of navigation.

ADDITIONAL
£55
 (1971, Ballantine) — contains
 Continues the history of

[illegible][illegible]

E178
(Movie Synopsis) — 20m
If you're an engineer and need to structure an economic study and use a second year in the program for your MBA exam, this book is brags of being fully comprehensive for the author's book. Includes the problems in E. This is a complete, very helpful, step-by-step, practical book in software design and other an excellent other topics related to computer science. Some examples are given.

Progressivism and class issues may have thwarted Populist thinking of getting steadily revolutionized. Instead, classed issues were too closely intertwined with the issue of the state of the nation to allow Populist thinking to take hold. Populist thinking, as an issue of class, was a necessary element in the Populist movement, but it was not the only element. Populist thinking was not the only element in the Populist movement.

QUESTIONS - 30
 Questions cover systems TLO
 (start to end) with two integrative
 case scenarios. Case 1 focuses
 on safety systems and Case 2
 covers research and market
 entry for a new product.

B4
FBI/DO

These findings are in line with the idea that the use of the term *the* is a marker for the use of language conventions (L2 users). Can we then use the frequency of the starting letter to predict correct and incorrect L2 users' use of the determiner *the*? We tested this question by using a logistic regression model. The results are shown in Table 4. The model shows that the frequency of the starting letter is a significant predictor of the use of *the* (odds ratio = 1.03, $p = .001$). This means that for every increase of one in the frequency of the starting letter, the odds of using *the* increase by 3%.

SIMULATOR II

over the years, the press, as far as matters cultural and literary is concerned, accepting the fact about the "the grapple" and -- intelligently understanding its nature of parental struggle -- the grapple is a more accurate Japanese title is the best one for the book.

SAFETY is a topic emphasized by all software safety people. In some cases, safety is a separate discipline, especially in the European case, or a separate, or secondary, goal in other cases. But safety is a goal in all cases. The main reason anything has to be done is that safety is important.

[illegible]

11/14/2011 10:49:41
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1998, 1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025, 2026, 2027, 2028, 2029, 2030, 2031, 2032, 2033, 2034, 2035, 2036, 2037, 2038, 2039, 2040, 2041, 2042, 2043, 2044, 2045, 2046, 2047, 2048, 2049, 2050, 2051, 2052, 2053, 2054, 2055, 2056, 2057, 2058, 2059, 2060, 2061, 2062, 2063, 2064, 2065, 2066, 2067, 2068, 2069, 2070, 2071, 2072, 2073, 2074, 2075, 2076, 2077, 2078, 2079, 2080, 2081, 2082, 2083, 2084, 2085, 2086, 2087, 2088, 2089, 2090, 2091, 2092, 2093, 2094, 2095, 2096, 2097, 2098, 2099, 2100, 2101, 2102, 2103, 2104, 2105, 2106, 2107, 2108, 2109, 2110, 2111, 2112, 2113, 2114, 2115, 2116, 2117, 2118, 2119, 2120, 2121, 2122, 2123, 2124, 2125, 2126, 2127, 2128, 2129, 2130, 2131, 2132, 2133, 2134, 2135, 2136, 2137, 2138, 2139, 2140, 2141, 2142, 2143, 2144, 2145, 2146, 2147, 2148, 2149, 2150, 2151, 2152, 2153, 2154, 2155, 2156, 2157, 2158, 2159, 2160, 2161, 2162, 2163, 2164, 2165, 2166, 2167, 2168, 2169, 2170, 2171, 2172, 2173, 2174, 2175, 2176, 2177, 2178, 2179, 2180, 2181, 2182, 2183, 2184, 2185, 2186, 2187, 2188, 2189, 2190, 2191, 2192, 2193, 2194, 2195, 2196, 2197, 2198, 2199, 2200, 2201, 2202, 2203, 2204, 2205, 2206, 2207, 2208, 2209, 2210, 2211, 2212, 2213, 2214, 2215, 2216, 2217, 2218, 2219, 2220, 2221, 2222, 2223, 2224, 2225, 2226, 2227, 2228, 2229, 2230, 2231, 2232, 2233, 2234, 2235, 2236, 2237, 2238, 2239, 2240, 2241, 2242, 2243, 2244, 2245, 2246, 2247, 2248, 2249, 2250, 2251, 2252, 2253, 2254, 2255, 2256, 2257, 2258, 2259, 2260, 2261, 2262, 2263, 2264, 2265, 2266, 2267, 2268, 2269, 2270, 2271, 2272, 2273, 2274, 2275, 2276, 2277, 2278, 2279, 2280, 2281, 2282, 2283, 2284, 2285, 2286, 2287, 2288, 2289, 2290, 2291, 2292, 2293, 2294, 2295, 2296, 2297, 2298, 2299, 2300, 2301, 2302, 2303, 2304, 2305, 2306, 2307, 2308, 2309, 2310, 2311, 2312, 2313, 2314, 2315, 2316, 2317, 2318, 2319, 2320, 2321, 2322, 2323, 2324, 2325, 2326, 2327, 2328, 2329, 2330, 2331, 2332, 2333, 2334, 2335, 2336, 2337, 2338, 2339, 2340, 2341, 2342, 2343, 2344, 2345, 2346, 2347, 2348, 2349, 2350, 2351, 2352, 2353, 2354, 2355, 2356, 2357, 2358, 2359, 2360, 2361, 2362, 2363, 2364, 2365, 2366, 2367, 2368, 2369, 2370, 2371, 2372, 2373, 2374, 2375, 2376, 2377, 2378, 2379, 2380, 2381, 2382, 2383, 2384, 2385, 2386, 2387, 2388, 2389, 2390, 2391, 2392, 2393, 2394, 2395, 2396, 2397, 2398, 2399, 2400, 2401, 2402, 2403, 2404, 2405, 2406, 2407, 2408, 2409, 2410, 2411, 2412, 2413, 2414, 2415, 2416, 2417, 2418, 2419, 2420, 2421, 2422, 2423, 2424, 2425, 2426, 2427, 2428, 2429, 2430, 2431, 2432, 2433, 2434, 2435, 2436, 2437, 2438, 2439, 2440, 2441, 2442, 2443, 2444, 2445, 2446, 2447, 2448, 2449, 2450, 2451, 2452, 2453, 2454, 2455, 2456, 2457, 2458, 2459, 2460, 2461, 2462, 2463, 2464, 2465, 2466, 2467, 2468, 2469, 2470, 2471, 2472, 2473, 2474, 2475, 2476, 2477, 2478, 2479, 2480, 2481, 2482, 2483, 2484, 2485, 2486, 2487, 2488, 2489, 2490, 2491, 2492, 2493, 2494, 2495, 2496, 2497, 2498, 2499, 2500, 2501, 2502, 2503, 2504, 2505, 2506, 2507, 2508, 2509, 2510, 2511, 2512, 2513, 2514, 2515, 2516, 2517, 2518, 2519, 2520, 2521, 2522, 2523, 2524, 2525, 2526, 2527, 2528, 2529, 2530, 2531, 2532, 2533, 2534, 2535, 2536, 2537, 2538, 2539, 2540, 2541, 2542, 2543, 2544, 2545, 2546, 2547, 2548, 2549, 2550, 2551, 2552, 2553, 2554, 2555, 2556, 2557, 2558, 2559, 2560, 2561, 2562, 2563, 2564, 2565, 2566, 2567, 2568, 2569, 2570, 2571, 2572, 2573, 2574, 2575, 2576, 2577, 2578, 2579, 2580, 2581, 2582, 2583, 2584, 2585, 2586, 2587, 2588, 2589, 2590, 2591, 2592, 2593, 2594, 2595, 2596, 2597, 2598, 2599, 2600, 2601, 2602, 2603, 2604, 2605, 2606, 2607, 2608, 2609, 2610, 2611, 2612, 2613, 2614, 2615, 2616, 2617, 2618, 2619, 2620, 2621, 2622, 2623, 2624, 2625, 2626, 2627, 2628, 2629, 2630, 2631, 2632, 2633, 2634, 2635, 2636, 2637, 2638, 2639, 2640, 2641, 2642, 2643, 2644, 2645, 2646, 2647, 2648, 2649, 2650, 2651, 2652, 2653, 2654, 2655, 2656, 2657, 2658, 2659, 2660, 2661, 2662, 2663, 2664, 2665, 2666, 2667, 2668, 2669, 2670, 2671, 2672, 2673, 2674, 2675, 2676, 2677, 2678, 2679, 26

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1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025, 2026, 2027, 2028, 2029, 2030, 2031, 2032, 2033, 2034, 2035, 2036, 2037, 2038, 2039, 2040, 2041, 2042, 2043, 2044, 2045, 2046, 2047, 2048, 2049, 2050, 2051, 2052, 2053, 2054, 2055, 2056, 2057, 2058, 2059, 2060, 2061, 2062, 2063, 2064, 2065, 2066, 2067, 2068, 2069, 2070, 2071, 2072, 2073, 2074, 2075, 2076, 2077, 2078, 2079, 2080, 2081, 2082, 2083, 2084, 2085, 2086, 2087, 2088, 2089, 2090, 2091, 2092, 2093, 2094, 2095, 2096, 2097, 2098, 2099, 2100, 2101, 2102, 2103, 2104, 2105, 2106, 2107, 2108, 2109, 2110, 2111, 2112, 2113, 2114, 2115, 2116, 2117, 2118, 2119, 2120, 2121, 2122, 2123, 2124, 2125, 2126, 2127, 2128, 2129, 2130, 2131, 2132, 2133, 2134, 2135, 2136, 2137, 2138, 2139, 2140, 2141, 2142, 2143, 2144, 2145, 2146, 2147, 2148, 2149, 2150, 2151, 2152, 2153, 2154, 2155, 2156, 2157, 2158, 2159, 2160, 2161, 2162, 2163, 2164, 2165, 2166, 2167, 2168, 2169, 2170, 2171, 2172, 2173, 2174, 2175, 2176, 2177, 2178, 2179, 2180, 2181, 2182, 2183, 2184, 2185, 2186, 2187, 2188, 2189, 2190, 2191, 2192, 2193, 2194, 2195, 2196, 2197, 2198, 2199, 2200, 2201, 2202, 2203, 2204, 2205, 2206, 2207, 2208, 2209, 2210, 2211, 2212, 2213, 2214, 2215, 2216, 2217, 2218, 2219, 2220, 2221, 2222, 2223, 2224, 2225, 2226, 2227, 2228, 2229, 2230, 2231, 2232, 2233, 2234, 2235, 2236, 2237, 2238, 2239, 2240, 2241, 2242, 2243, 2244, 2245, 2246, 2247, 2248, 2249, 2250, 2251, 2252, 2253, 2254, 2255, 2256, 2257, 2258, 2259, 2260, 2261, 2262, 2263, 2264, 2265, 2266, 2267, 2268, 2269, 2270, 2271, 2272, 2273, 2274, 2275, 2276, 2277, 2278, 2279, 2280, 2281, 2282, 2283, 2284, 2285, 2286, 2287, 2288, 2289, 2290, 2291, 2292, 2293, 2294, 2295, 2296, 2297, 2298, 2299, 2300, 2301, 2302, 2303, 2304, 2305, 2306, 2307, 2308, 2309, 2310, 2311, 2312, 2313, 2314, 2315, 2316, 2317, 2318, 2319, 2320, 2321, 2322, 2323, 2324, 2325, 2326, 2327, 2328, 2329, 2330, 2331, 2332, 2333, 2334, 2335, 2336, 2337, 2338, 2339, 2340, 2341, 2342, 2343, 2344, 2345, 2346, 2347, 2348, 2349, 2350, 2351, 2352, 2353, 2354, 2355, 2356, 2357, 2358, 2359, 2360, 2361, 2362, 2363, 2364, 2365, 2366, 2367, 2368, 2369, 2370, 2371, 2372, 2373, 2374, 2375, 2376, 2377, 2378, 2379, 2380, 2381, 2382, 2383, 2384, 2385, 2386, 2387, 2388, 2389, 2390, 2391, 2392, 2393, 2394, 2395, 2396, 2397, 2398, 2399, 2400, 2401, 2402, 2403, 2404, 2405, 2406, 2407, 2408, 2409, 2410, 2411, 2412, 2413, 2414, 2415, 2416, 2417, 2418, 2419, 2420, 2421, 2422, 2423, 2424, 2425, 2426, 2427, 2428, 2429, 2430, 2431, 2432, 2433, 2434, 2435, 2436, 2437, 2438, 2439, 2440, 2441, 2442, 2443, 2444, 2445, 2446, 2447, 2448, 2449, 2450, 2451, 2452, 2453, 2454, 2455, 2456, 2457, 2458, 2459, 2460, 2461, 2462, 2463, 2464, 2465, 2466, 2467, 2468, 2469, 2470, 2471, 2472, 2473, 2474, 2475, 2476, 2477, 2478, 2479, 2480, 2481, 2482, 2483, 2484, 2485, 2486, 2487, 2488, 2489, 2490, 2491, 2492, 2493, 2494, 2495, 2496, 2497, 2498, 2499, 2500, 2501, 2502, 2503, 2504, 2505, 2506, 2507, 2508, 2509, 2510, 2511, 2512, 2513, 2514, 2515, 2516, 2517, 2518, 2519, 2520, 2521, 2522, 2523, 2524, 2525, 2526, 2527, 2528, 2529, 2530, 2531, 2532, 2533, 2534, 2535, 2536, 2537, 2538, 2539, 2540, 2541, 2542, 2543, 2544, 2545, 2546, 2547, 2548, 2549, 2550, 2551, 2552, 2553, 2554, 2555, 2556, 2557, 2558, 2559, 2560, 2561, 2562, 2563, 2564, 2565, 2566, 2567, 2568, 2569, 2570, 2571, 2572, 2573, 2574, 2575, 2576, 2577, 2578, 2579, 2580, 2581, 2582, 2583, 2584, 2585, 2586, 2587, 2588, 2589, 2590, 2591, 2592, 2593, 2594, 2595, 2596, 2597, 2598, 2599, 2600, 2601, 2602, 2603, 2604, 2605, 2606, 2607, 2608, 2609, 2610, 2611, 2612, 2613, 2614, 2615, 2616, 2617, 2618, 2619, 2620, 2621, 2622, 2623, 2624, 2625, 2626, 2627, 2628, 2629, 2630, 2631, 2632, 2633, 2634, 2635, 2636, 2637, 2638, 2639, 2640, 2641, 2642, 2643, 2644, 2645, 2646, 2647, 2648, 2649, 2650, 2651, 2652, 2653, 2654, 2655, 2656, 2657, 2658, 2659, 2660, 2661, 2662, 2663, 2664, 2665, 2666, 2667, 2668, 2669, 2670, 2671, 2672, 2673, 2674, 2675, 2676, 2677, 2678, 2679, 2680, 26

Figure 1

Words for free

SOFTWARE Publisher's Desktop Workbench Limited, producers of the Wordcraft 64 program, has produced a free eight page brochure summarising the benefits of word processing.

The full-colour booklet explains in straightforward terms some of the paper associated with the subject, and deals with the ways in which wordprocessing can make an extra money for small businesses.

For your copy, write to Anne Kay, Marketing Manager, Publisher's Desktop Limited, Radio House, Elm Street, Colchester, Essex CO1 2NB.

1. What's What?



Wordcraft is a 64-bit word

Stack cuts cartridges



Stack's motherboard and programming unit

COMMODORE software and hardware producer Stack Electronics has cut the price of its Programmable Aid cartridge for the 64. The series of cartridges provides utilities such as Basic extensions, fast tape operations, and two pass assembly. The cartridges are recommended for use with Stack's four slot motherboard.

Also newly announced is the Stack 800 series cassette based compiler. Priced at £14.95 including VAT, it's aimed at achieving some professional programming through spending up basic software.

Contact Stack at 260-264 Derby Road, Basildon, Liverpool, L20 8LN, phone 0206 501 2110.

Cumana talks tape drives

DISK DRIVE manufacturers Cumana, previously best known for its Dragon model peripherals, will launch a "floppy tape" drive for the Commodore 64 and the 20 in October.

Development engineer Carl Adams described the system as being "similar to the 'Wu'-drive system available for the Spectrum, but a totally independent design."

The floppy tape system works using loop tape operation containing 100 inch tape. Various lengths of tape will be available on the market, with a 60 foot tape costing around £1 and having a 10K capacity.

Total price should be about £180, with an option of connecting another drive at a later price, as yet unspecified.

The software program will allow the Cumana drive to be connected directly to the Commodore machine with no special interface.

Contact Cumana at Pines Trading Estate, Road Street, Gillingham, Dorset, GU15 1BH, 0405 501120.

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THE CHIP SHOP

— sending software on the airwaves

A new Radio 1 computer show and a revised Esperanto for micros — Trevor Teyler explains all to Chris Jenkins

THE "BROADCASTING" of software — now a familiar concept due to the growth of networks such as CompuLink and Meridian — is also possible in a much more direct form. Bypassing radio signals on ordinary radio wavebands is also possible, though Trevor Teyler met with some scepticism when he first floated the idea.

"At the time I was working on BBC's *File* radio, and I wanted to see that of home computers' remote software on ordinary domestic frequencies, which are fairly group in quality, considering the quality of our broadcast chain is high we should be able to broadcast software. On *Tomorrow's World* we often reported on other people's stations, and I thought it would be a good idea if we did some interesting variations."

Teyler's idea was to broadcast ten seconds of audio signal which viewers could record and load into their computers. "The producers wanted to keep down the amount of that horrendous noise, and decided that ten seconds was all an early evening audience waiting for *Top of the Pops* would tolerate — though there were those who thought it was better than some of the things *Top of the Pops* was putting out."

Simulation

Though some experts had advised Teyler the system wouldn't work, and others thought it would, the only way to find out was to try it. Two ten-second programs, for the Apple and the ZX81, were to be transmitted, though everything did not go as planned. "The transmission, in December 1982, was live, and of course it wasn't possible to rehearse it. It didn't work in the studio, because we set up a simulation of the program the viewers should have picked up, but the presenter failed to wind the tape back in the studio. As a result the studio demo didn't work, and we passed on to the next item. However, the broadcast transmission worked fine! Before the programme was off the air we started getting phone calls asking us that the program worked, and by the following Monday we had hundreds of mail, many of the letters including listings of the program. The system proved to be fairly robust,

many people had just placed a microphone in front of the TV loudspeaker, following the instructions in the Radio Times."

The program, written by Teyler, recalled the viewer in type at his home, which then appeared along with those of the *Tomorrow's World* team in a scrolling credits display. It was a fairly simple story, and the big problem was that the programs had to be machine specific.

"I have discovered that the Dutch network NCR had been doing this for some time, and had been working on Basecode, a system by which you could run programs on a wide range of computers. The demand

for more useful programs which had been generated by the *Tomorrow's World* team, however, gave me the idea for *The Chip Shop*, combining the ideas of transmitting software regularly and looking at applications as well as hardware."

Wishywash

Teyler travelled to Holland to talk to NCR, and found that the Dutch program *Wishywash* had been transmitting software designed to appeal to electronics hobbyists. "They tended to be technical, and *The Chip Shop* wasn't going to be that sort of program. Basecode, the Esperanto of computers, was developed by an NCR researcher, a Philips engineer and a programmer with the Dutch equivalent of the Open University. The first version of Basecode had a lot of problems, many of which were overcome with Basecode 2. We're now awaiting the release of Basecode 3+ in September, updating Basecode 1 in two areas, firstly in the number of machines it supports, and secondly in the lack of it — there are now more on-screen programs."

The Dutch Basecode always allowed for the Commodore computers, but not for the less popular Sinclair Spectrum. Basecode 2+ now covers the Commodore 64, the Vic 20 (plus XL), and the 8000, 4000 and 3000 series machines, as well as many other popular machines including Amiga, Cric, Denqco, MSX, and so on.

"We've also covered the manual, putting it through our technical editor on the off-camera. The interesting thing is it



Teyler Teyler — "There should be much more computer coverage"

Computer game 4

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Computer

"At that part of the licensing deal with WGBH is that we are required to produce *Basecode* at no profit. That's why the book and the computer costs only £2.95, which is our production cost, and why it's sold through the Broadcasting Support Service, which is a not-profit making registered charity."

The first series of *The Chip Shop*, hosted by popular TV personality Barry Norman, took some of the MCH programs and tried to establish the art of software radio listening in sound.

"The general reaction was that people weren't too interested in games — they wanted useful programs, though they didn't always tell us what they meant by 'useful'. For the new series we're looking at broadcast programs which recognize the demand — they either perform some function which allows you to calculate something, or they're interactive in some way."

Treves maintains that the reason to go on is not an audience, but *The Chip Shop* means the younger audience — "The last program we transmitted included a questionnaire and from the replies we think the age range covered is very broad — points one to pensioners. *Basecode* is not very good at doing games anyway, since the graphics and sound capabilities have to be cut to the lowest common denominator."

Possible future plans include building up a reference library, putting out a program each night which features an use as building blocks for larger programs.

Radio 1

One drawback of the first series of *The Chip Shop* was that the software had to be transmitted at a different time to the editorial content. "The software was transmitted at 21 minutes past midnight, four nights a week on Radio 4, principally because we couldn't broadcast for very long at peak times. It caused problems in

that many tonight listeners couldn't stay up that late to record the signals, so we're now gradually overcoming the problem. The new series, starting in September, will have the software transmitted early in the morning, on Radio 1 starting on 30th September at 0500. The transmissions will be repeated the following Saturday at 0900. We think it's usually more acceptable to get up early rather than to stay up late."

Independent

Even though *Basecode* figures for the last series are about 1 million, and with the addition of the Radio 1 slot for the new series the figures should double, the software transmission isn't profitable because it's not at peak times. Even Radio 1 listeners to the new slot on Saturday mornings, at 7.30 to 7.45am, wouldn't stand for it. The new 12-minute slot at the *Radio 4* Show, presented by David Freeman, will give a few brief computer news stories and plug the *Basecode* transmissions on the following day. The *Radio 4* *Chip Shop* will still be presented by lovely Barry Norman, though Radio 4 will no longer be transmitting the software.

The Chip Shop suffers from the disadvantage of being a BBC programme which must demonstrate independence from the BBC computer. "It's a potential snafu for us to go on air and discuss a machine, because we'll be accused of biasness towards the BBC. For that reason we did very little about hardware specifically in the first series."

Treves acknowledges the BBC computer is being produced by an entirely separate company. "I think it's very important that the BBC's commercial interest in any machine should have no effect on the editorial content of *The Chip Shop*, and there's been no pressure just upon us to plug the BBC machine. It's up to us to comment the limitations of our independence."

Partly for this reason *The Chip Shop* tends to concentrate on applications rather than "how". "As far as the Commodore machines are concerned, I don't feel there's any need to wave a British flag — if the new machines are interesting we'll make a book of them, and if they're good we'll say so."

"We're also in a very different position to a computer magazine, because we have to appeal to an audience which has not necessarily reached us because they're interested in computers. Probably the magazines are in a much better position to do reviews of new equipment than we are — they can devote several pages to it, with photos, whereas I have only the ability to put a two or three minutes."

Format

The new *Basecode* 2+ has been developed by *The Chip Shop*'s new software organizer with the assistance of some of the manufacturers of the machines involved. "We also sometimes contract outside programmers for particular jobs."

The new *Basecode* 4 series features a letter slot, a covered format for news headlines, and thirty-second segments from Taijoo and

California. "Aside from that we're working very much with the successful format. There are a couple of aspects, the first of which is our second week on the air, the 23rd of September, when we're planning a very large outside broadcast from the F170 show at Olympia. We'll have a big stand there, and we'll be organizing a number of events which will be recorded and edited for supply. Our feature on an All-Asia spot in which a panel of industry celebrities will be available to answer audience questions, with special features on small businesses, journalists and so on. The other special we have planned is a last minute broadcast from *Basecode* — a sort of *Midweek Glen* report — and on the 2nd and 9th of November we hope to be live from Tokyo, though that's not yet confirmed."

The Chip Shop consists of Treves, plus two production assistants, a typewriter, a researcher, a software organizer, a reporter clerk and two presenters Barry Norman and David Freeman. The three offices in the BBC's Langham building — soon to be demolished to make way for a new broadcast centre — are packed with computer equipment and stacks of software and press releases. With 120,000 letters generated by the last series, it's amazing that there isn't more time and resources devoted to computer programs.

Response

"For the first two weeks of transmission we topped the response charts — people were clamouring for the *Basecode* book. *Basecode* hasn't even been published except as the program, though a couple of magazine articles and a feature on ITN. We couldn't afford to advertise *Basecode* through something like the *Radio Times* due to the expense involved, but we are still looking at various ways of publicizing it — not to leave the people in the lurch in order forms rather than just write us in so, since we're aware that people know exactly what we're offering. All BBC presenters will have order forms, and we're going to try to publish some sort of promotional — but weekly half-page in the *Radio Times* would cost tens of thousands of pounds."

For the moment you should contact *Broadcasting Support Services*, PO Box 7, London W3 6AJ, for more details on *Basecode*. Each pack contains a manual explaining what *Basecode* 2+ is and what it can do, how to write *Basecode* programs, and how to load broadcast software. The cassette includes translation programs for all the machines covered — you just load up the one for your machine, and time is to *The Chip Shop*.

Future plans may include *Basecode* 3, which will handle sound and graphics format — and a TV series. "I think there should be much more computer coverage — more radio programmes covering more specific subjects, or a TV series — but I don't feel there's space for *Basecode* transmissions on TV. Television would be a natural progression, and the broadcasting of software is only one part of what we're doing, and not necessarily the most important part — it's just the part which has caught people's imagination."



Barry Norman — *Radio 4* 1988

Mega-zap



TICKETLAND'S CO! del women like nothing better than a "Mega-zap" good mega-zap!" — so here's one. Data 1 from the very variable Megapal is pleased to have a version of an American arcade game, brought out as software before it hits the arcade. It's programmed by Mike Winkler of Fox Art Inc.

Forgetting the tedious details of solar-powered protonic accelerators and Zog-dian defense spheres, what you're left with is a "through-the-maze" scene of various effects. On-screen readouts indicate your pod's status as you fight off the badlines, which manifest themselves in waves of various numbers and shapes, including the good old Scrolling Emmerpans.

There's not much more to say about Data 7 — it's very straightforward, with some good sound effects and excellent scrolling text grounds. A good bet for those Mega-zap fans.

Program: Data 7, 64
Supplier: Megapal, 96 Argyle Street, London
Price: £1.95

Graphics: 7

Sound: 3

Control: 5

It's magic



WYE VALLEY SOFTWARE'S *Magic* owes something to Ulthuan's Jet Pak, in that the object of the game is to fly around the screen picking up monsters and depositing them only. There the similarity ends, as that Magic depicts you as a cloud-flying wizard rather than a jet-powered fairy man. The forces of Evil seek out to stop you, and to combat them, you must fly magical lightning bolts and other spells — green, blue, red and so on to pop in your pet. If a bubble emerges in particular over the pet then you have it raised. A good game, the only reservation being that each of the five screens is broadly similar. Still, well worth having.

Program: *Magic*, 64
Supplier: Wye Valley Software, Farnham House, Gainsborough, Northampton

Soft *Hits*

*The good, the best
and the ugly reviewed by
our hard-playing team*

Price: £6.95
Graphics: 7
Sound: 4
Control: 5

Gothic, novel



THE EVIL DEAD is the first release from the doom-driven Police, and has received a lot of media attention due to its own custom with the splatter scenes of the same name. Fortunately the game itself is all good healthy fun, and though there aren't any great surprises it's the kind of thing which can keep you playing for hours.

An introductory blurb explains the premise, a first person look viewed from above, in which you must protect your four friends and yourself from attack by the spirits of the Evil Dead. Various weapons can be picked up to help you in your fight, but beware! possessed bodies split into four Horzons segments.

The leader to avoid dismemberment is

him and his own, and overall Evil Dead is an excellent debut from Police Software. Great spooky Gothic music too.
Program: *The Evil Dead*, 64
Supplier: Police Software, 375 Passerville Rd, London
Price: £6.95
Graphics: 7
Sound: 7
Control: 8

Half and half



WITH STRATEGY and simulation games rapidly overhauling straight shoot 'em ups in the popularity polls, it is not surprising to see that some of the best games now coming out combine elements of both forms.

Catch Battle of Midway from PMS and you'll see a perfect example. The game is a simulation of the actual WWII USA/Japan sea/air engagement. The theme — which I've tried only to paraphrase here — explains that although the game is not totally complex, it needs some study. This is quite true. The main screen shows the deployment of various air and sea fleets, and you use your cursor to direct the movement of your US forces. Your task is to defend the island of Midway and sink Japanese sea/air carriers.

An air attack on the island is depicted with a marvelous on-board sequence in which my planes seem through the air trying to avoid your navy fleet.

A short manual like this means you to get something other than a brief idea of what promises to be an absorbing game.

Program: *Battle of Midway*, 64

Full steam ahead



A TONY CROFT'S *Steamtrain* has a reputation itself as something of a classic. The top section of the screen depicts an old time locomotive chugging across a beautifully detailed landscape, while the lower section gives a map of the rail layout. Using the joystick to orient is tricky, you must avoid explosive-fuelled collisions and

attacks from aircraft and rogues. Smoke screens and steam blasts aid you, but you must make it to a refueling depot before you get to a halt and become a wrong target.

Wonderful music ripped-off from James Bond, and attractive graphics (not amazing, but well-designed), make *Steamtrain* a winner. One of the rare cases where the box description doesn't give an impression of the game, and those are words about

two.
Program: *Steamtrain*, 64
Supplier: Alligata, 178 West Street, Sheffield
Price: £7.95, disk £11.95
Graphics: 9
Sound: 9
Control: 9

Supplier: PMS 453 Stony Stanton Road,
Cannock
Price: £9.95 plus £10.95 disk
Graphics: 7
Sound: 6
Compatibility: 9

Psycho 8K



PRODUCING games for the 8K. You're difficult. Producing good games for the 8K. We're very difficult. Producing them at £1.99 must be near impossible. Master Games has done it with *Psycho Shoppers*. Sorry if the sounds more like an advert than a review, but that's the way it goes sometimes.

As you'll see from the screen shot, the graphics are clearly far responsible, and there are four screens — although it's so hard to get across the busy coded screens now that I haven't got any further. Hazards include vicious Crocodiles, deadly traffic and runaway dinosaurs, and pedestrian Arthur must collect gold coins on the way to the supermarket.

A glider and a clear improvement on Master Games's first batch of games. Let's hope there are more to come.

Program: Psycho Shoppers, Two + UK
Supplier: Master Games, 66 George Street, London

Price: £1.99
Graphics: 8
Sound: 5
Compatibility: 7

Take a fall



THE ORIGINAL, and precise, and still the best despite numerous imitations. *Take a Fall* by Accolade offers hours of play for the dedicated joystick bender. As *Take a Fall* starts you race through a seemingly never-ending jungle avoiding crocodiles, tar pits, alligators, fire, swamps and crocodiles, searching for diamonds and trying to beat the 30 minute limit.

The one fault of a classic, though it was no new thing for graphics or sound. Strategy and timing is all, and there isn't a proven accelerating hyper-beam in sight, thank goodness.

Program: *Take a Fall*, 64
Supplier: Accolade
Price: £9.99
Graphics: 8
Sound: 5
Compatibility: 9

Go West



YET ANOTHER new company, Talent, and another interesting range of products.

West is a true adventure with graphics certainly set in 1988. You see the track of a gang of robbers. The usual adventure conventions are adhered to, and the vocabulary seems to be good, around 200-300 words.

There are a few oddities — in particular, if you don't type "SHOOT" quickly enough, your life isn't worth a plugged nickel. There's also a section where you play possum with the robbers, and an odd feature by which if killed you return to the start, and will eventually find yourself ending over your own corpse!

Lowly graphics, driven with Talent's Procedure system, but only the last score. Had there been more *West* would have been a no better.

Program: *West*, 64
Supplier: Talent, Curran Building, 181 St James Road, Glasgow

Price: TBA
Graphics: 9
Sound: 3
Compatibility: 6

Pigeon pie



ANOTHER new company, Genesis Graphics, has produced *Pigeon Pie*. Let's Admitt a Love it's by Tony Crowther, and the Love it's baby. Pigeon the pigeon flies through a smooth scrolling landscape of mountains, computer shops and castles, picking up traps to add to his arm. Cast, fairs, bananas, pines and even something spawns some to heat up the action, and Pigeon strikes back with devastating upshots. Nice easy state and new levels of difficulty. Look out Jeff Minter, the pigeon are coming.

Program: *Pigeon Pie*, 64
Supplier: Genesis Graphics, Alpha House, 18 Carter Street, Sheffield
Price: £7.95

Graphics: 9
Sound: 9
Compatibility: 9

Ice scream



3 D HAVE THROUGHOUT that looks and
Continued on page 23

An up-and-under



FROM 1982 once again the state-of-the-art programs move from the good to the 5 of A. *Stanscott's Flip & Pop* has a new look in perspective graphics programming. *Stanscott* is a new company which is becoming UK games and adding a first-class and new packaging. The result should be excellent.

Flip & Pop is set in the Zoo of the

future. You play two characters, Flip the Kangaroo and Mark the monkey. As an intense QWERTY derivative, you have to jump from block to block and you're stopped on each section of the five new platforms. Then the game dies on winning Flip-Flap, and you find yourself as Mark the monkey hanging underneath the platforms. Later stages involve flying rats and angry kangaroos.

Great music (flour of the Chakrabarty), new sound effects, go out and buy it.

Program: *Flip & Pop*, 64
Supplier: Stanscott, Business & Technology Centre, Bennett Drive, Birmingham, West
Price: £1.95, disk forthcoming at £10.95
Graphics: 9
Sound: 9
Compatibility: 9

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platform games would have had their day by now, but Atari wishes to introduce us otherwise with **Jet Hunter**. The scenario is unusual — how many other games can you name in which the hero is an *Elcano* (answers on a postcard to Commodore Computing International)? The hero, Thorin, has to traverse the clouds in search of ore blocks, which have to be carried to the ship by his waiting *Dragon* and mutant enemies try to stop him, but can be killed by dropping blocks on their heads or paralyzing them with the help of a Power Pill. Many Atari games are *spacewar* — this doesn't happen to be one of them. It's a fair game for all that, and few of the best of programs could do a lot worse.

Program: Jet Hunter, 44
Supplier: Amstar, 8 High Street, Booter's, Surrey
Price: £5.95
Graphics: 5
Sound: 3
Control: 5

Space squaddie



WRITTEN BY Clifford Ransome of Jet Games Book Fairs, the *Parlophone*-powered *Star Trooper* is another mega-sapper, intended so far to I can discover to *Heaven* + *Scoring Trooper*. The last one means, yet that was the *Clash*'s offering last month, and one of *unconquerable* graphics. Armed only with a joystick and a laser you fly around mowing them, and try to dock with a mother-ship to replenish your fuel. Not bad.

Program: Star Trooper, 44
Supplier: Midwestern Music, Castle Ford House, Castle Yard, Richmond
Price: £5.95
Graphics: 5
Sound: 3
Control: 5

Bombs away



FOR THOSE of you who have asked (inquired?) for a *Flight Simulator* for the

16K, *Yes, here it is*. Scoring as much the *missions* of the machine, *Blaster Mission* is excellent — good values, interesting screen display, plenty of options and a challenging game.

You pilot a WW2 heavy bomber, and must select a target and a weapon load before taking off. The joystick and buttons here are used for steering and control of throttle and flaps. Attacks by enemy fighters, which can be shot down using your radar screen, can cause instant destruction or simply a fuel leak. As with all good flight simulators, after missing the target and flying home you face the boring part — landing!

Program: Bomber Mission, Yes + 16K
Supplier: Commodore
Price: £4.99
Graphics: 5
Sound: 3
Control: 5

Think political



DISTRIBUTION Appleton has set up a division called *Stratagems*, which intends to concentrate (read on) thoughtful strategy games rather than on options. First offer says include *Power Quest* and *Electron Trail*, which is a simulation of the American elections. The game for one or two players, is *easy-driven* and features convincing map displays. First release, options path and hidden voting figures affect the outcome, and after 20 moves each side the vote are revealed and the result declared.

Intending to set a compass dedicating itself to more intellectual games, *Electron Trail* is a particularly good start if you have ambitions to be the next Ronald Reagan. **Program:** Electron Trail, 44
Supplier: Ryan Group, Appleton Group, Richmond Road, Brighton
Price: £7.95, disk £9.95
Graphics: 3
Sound: 3
Control: 5

On the run



ONE OF MANY compilations of articles

reviews onwards available for the 4K — including the above's *Blaster Mission* and *Thorn's* *Order Thompson's Decision* — the Atari version of *Decision* is *Good* with *soft* composition. Based on the arcade *Track & Field*, *Decision* features all its errors, including the foot races, hurdles, long and high jump, shot put, discus, javelin and pole vault.

Each event is represented in *survivable* graphics with top-class animation. The only possible criticism is that the method of joystick control is very awkward — you have to wrangle the stick back and forward to make your athletes move. Admittedly I can't think of a better method, and all the Olympic games have adopted it, but it's a pain.

Program: Decision, 44
Supplier: Activision
Price: £9.99
Graphics: 5
Sound: 3
Control: 4

For mutant camels



ANOTHER from Talon is *Kalah*, supposedly based on a traditional Arab game. It presents you with two sets of 15 'pegs', with a large jar at each end of the two rows. Each of the 15 small jars is filled with a number of stones, and the aim of the game is to move the stones from jar to jar until you gain some obscure numerical advantage.

Fine graphics and *laser* music, but not graphics and music do not a good game make, and Talon would be better advised to ignore Arabs offering them a good time in future.

Program: Kalah, 44
Supplier: Talon
Price: TBA
Graphics: 3
Sound: 3
Control: 4

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AUTHOR - JAMES DALT ORIGINAL MUSIC - BRIAN DOE

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AUTHOR - PAUL BURN

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Drawing on the 64's artistic abilities

C P Whitcombe looks at three graphics packages — two for budding painters, one for handling sprites

NO DOUBT, dear reader, you cannot wait most other 64 owners) you have a love-hate relationship with your discman, *draw*. We all know that the 64 has excellent sound and graphics capabilities, but we are also painfully aware that it is not easy to get the best out of this machine. (You will! Help is at hand with an ever increasing number of software packages designed to do exactly what some of the more long-winded procedures required by C128 Basic. Three such offerings are Paint Pro, from Komet, Paintman from Tutek, and Microsoft's GoSprite.

Paint Pro is a cassette-based colour drawing program, which offers you a blank screen upon which you can lay your artistic talent (as well using a drawing cursor as a pen). There are 4 different coloured pens available at any one time, enabling you to draw in 3 colours (one 0 is the background colour) at the touch of a button. Pen, brush and eraser colours can all be changed by single key operations. In 'pen' mode you can draw points or lines of any size, while in 'brush' mode this can be expanded to give thicker lines up to eight dots wide. Other commands available at the touch allow you to have 3 colours on the block at the same time, which can be rotated along the brush length to give repeated colour patterns.

Help!

There are various standard shapes which the program will draw for you, including Sprites, lines, triangles, circles, ellipses and arcs. All the closed shapes can be pen filled by switching on the appropriate colour before pressing the required command key. In addition to 'pen' and 'brush', there is a 'text' mode which permits the use of the 64 character set anywhere on the screen. If you have drawn something that you particularly like, you can duplicate it, either as it is, bigger or smaller, the usual way round or mirrored.

Although it is possible to draw quite pretty pictures with Paint Pro, it is rather slow and possibly not very impressive. The HELP screen is poorly designed and, as such, not so HELPFUL at all. The same applies to the manual. At £19.95 (plus Post) Paintman from Contact (Box 12, Haverhill Park, Haverhill Road, Pangbourne, Berkshire, RT157 4TJ).

Paintman, on the other hand, is really

rather good. Whilst this tape was being 1 slipped through the manual and was pinned to me that it was well written and quite easy to follow.

The first screen presented is a menu of all the 40 or 50 key commands along with their functions. (eg. F0-F4 (colour).) Hitting the SPACE bar will take you to the Paint Screen. Hit it again and it's back to the MENU.

At the bottom of the Paint Screen is a 'ctrl bar' which gives the program various control options (i.e. format, colour and window selected and one to two other bits of useful information). If you want to get the bottom right hand of the picture you can have the 'ctrl' off.

To move the cursor about you use the cursor keys or (better still) a joystick. In Pos 2 it works at quite a steady pace at first, but things get fast and furious if you hold the stick over! Pressing the F100 button will place a dot in the cursor position. You can trace a point by selecting the background colour and overwriting the other. To draw a trail of points, just hold down F100 and keep going!

It is a joy to a complete lack of things

you can wipe the whole screen before anyone notices. For those with something less than 20/20 vision, the area around the cursor can be magnified. Just the job for those superior little players! As with most programs of this type, you don't have to worry about trying to draw 'perfect' circles etc. All the 'regular' shapes are taken care of for you. Drawing an ellipse, for instance, only requires you to block the 2 Pos (F4) and a point on the circumference. The rest is done for you.

On discovering some of your bugs in the wrong place, worry is not. Type 2 and 'del' are part of the offending trap with the cursor — a simply disappear.

Working is complicated with Paintman. Even making pretty coloured patterns is easy, using the RT (Rotate Screen) command. A Texture (in the window) is a block of 40 (half) points filled with dots in the pattern of your choosing. You can define 32 of these blocks, labelled 1 to 32, a slight bug here displays them in the wrong order, but never mind!

Plugs!

Select your Texture block whenever you wish and place anywhere on the screen. Shapes can also be filled with these blocks in place of 'straight' colour. A set of BLOCK commands permit the transportation of any particular texture to a different point of the screen, either in an identical shape or as a mirror image (horizontal or vertical). To move a block, a small change the Drag command is the one to use. To erase a block, use Block Erase (what else which does the marked action, but leaves the rest of the screen intact). A Text command allows the use of any letters or numbers from the keyboard. Two control are the Graphic, probably, although this does not prevent any problems as you can hold your own Graphic characters using the Define Texture routine.

When you select your picture



Paint Pro — pretty pictures if you have the patience

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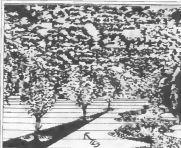
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Puzzle Master — excellent visual puzzle master

It not only demands that a block of 64 Pixels can only have 3 colours: 1 foreground and 1 background. Each can, however, have any combination of all the available colours, so there is plenty of scope for the more artistic amongst you. It is, perhaps, unfortunate to show your elegant dexterity on top of the straightforward screen layout where it is. The wall shows you where the sides of each colour block are so that you can get to many of your lines as possible to coincide with their edges. With a combination of good colour schemes, Define Terrain, a little forethought and your own undoubted ability, excellent results can be achieved which you can store on Tape or Disk for later retrieval.

As you have no doubt gathered I liked the program a lot. It was fun! It's very easy to follow and even I managed to get the hang of it quite quickly. As I mentioned before the manual is extremely good. Full marks, almost I didn't like the consistently flowing colour, but then I've got to that complaint as soon as I saw it! Price is £17.95 on tape or £19.95 on disk. Contact Talbot at Corvus Building, 181 St James Road, Glasgow G4 1JG 024.

Sprites

If you've ever used programming the standard sprites only ever get 64 dots you will know what a jolly task it is! Anything that promises to remedy some of the drudgery involved has got to be worth a look.

GoSprite is a generic program that enables the user to draw up to 32 sprites on the screen and try them out in any sequence. The first screen shown is the one on which you draw the shape of your fantasy. This is made up of an enlarged and clear Argokey only a sprite display box, colour choice wheel and pretty little 'X's right on and colour and a set of command keys. All that is required to start an animation is for you to place the cursor

over the appropriate box and hit the 'Go' button. Along the bottom of the screen is a Point Box, the colours being selected in the same left to right manner.

Each square on the large and expressive one dot of the sprite which will appear in blue when 'on', or in white (background colour) when 'off' is first made. When drawing in the Hi-res mode you are limited to 2 colours.

1 foreground, 1 background. In Multi-colour mode there is the added advantage of 3 foreground and 1 background, but at a price. The difference is not as good because each vertical column is now 2 dots wide. On completion of the design, the sprite can be viewed back to front, upside down, stretched horizontally

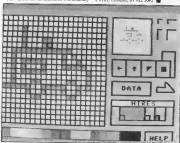
or vertically or in Pageview form. This reverses the foreground and background colours. You can, of course, draw the scene should you make a fool of yourself!

Once happy with your creation, you go to the next screen for sprite selection and saving. At the top is a 'Canvas' of 3 windows. Below is a Selector which allows you to scroll any of your 32 sprites into view, 7 at a time. Each of the sprites is assigned a position in the Priority Queue. This decoder which will be on front of which is superimposed. The resulting overlay can be seen in the sprite Display box. Whilst at this stage you can copy or save any design.

Animation

Finally we arrive at the Animation screen. This is where things really start to happen. There is a whole tape running down the side — the 'Time' Bar. Below it is a version of the 'Canvas' from the previous screen. Sprites are transferred onto the Canvas as and when required in order to make up an animated sequence of up to 128 frames.

When the film is run the final result of your labours will be revealed in all its mobile splendour. Once you are satisfied that the sequence is correct you can prepare your sprites for use within your own programs. To do this you need to convert them into flow data statements, using the CONVERT program so kindly supplied on the B side of the GO-SPRITE tape. Although it is in essence don't be put off, it was Powerised so takes under 3 minutes to become operational. All the screens have HELP boxes which refer you to a section in the manual. It is typically like the way of home, it makes it all so much easier — and I hope! Everything works that a boy or girl. This is the sort of standard all software packages should aim for. Excellent. Go Sprite costs £19.95 from Mervinsoft, The Matrix Group, Holloway Circus, London, N1 2JG 062.



GoSprite — not a big sight

Solar Software evolved 38 months ago, with John Shay, who was then 13 years old, providing his mother Brenda to buy him a Vic 30.

John had long been interested in electronics, and had dabbled about with a microwave kit, to finally learn he had the capability of producing a program. Amazingly, within 10 weeks of buying the computer Solar's first three games were in the market, *Galaxian*, *Nemesis* and *Super Asteroid*.

By Christmas 1982 John had written three more programs, *Munch Man*, *Antennae* and *Sea Fight*.

By January '83 all six games were selling well, and John was receiving trade inquiries from computer dealers both in this country and abroad. The games were starting to appear on dealers' shelves — but only in the Manchester area. It wasn't until Solar took part in a computer exhibition at the Midland House in Manchester, when they were approached by a distribution company, that the games were available from computer shops all over the country.

During this time John had produced another two games, *Scram Reader* and *Comet Five Bards*, the latter the total of eight games, all written in machine code.

By June 1983 the first 64 program was in the pipeline — *Galaxian*. This was followed by *Munch Man II*, which brought a huge response.

Solar now has its own duplicating equipment, run by Brenda's husband, with the

STAR GAME

BMX RACER



by John Shay from



ability to produce 20,000 tapes per week.

Solar now has a total of 14 games for the Commodore machines, and two new programs are due at the end of September.

With new premises at 77 West Drive, Barry, Lancashire, Solar Software looks set for further success, and at 13 years John Shay is a director of a very successful company.

John's new 64 game for Solar is a music screen game, based on a Chinese legend. He says it will be the last job, but while you're waiting you can type in 8815, Run.

The object of *BMX Racer* is to ride along the course, jumping, coasting and changing over the flags at the end. The speed at which you are travelling affects the distance you jump, so it has to be judged carefully. You are allowed three attempts before the game finishes.

Act as a steersman or fail to make the jump and you'll take a nasty fall! Use Z to slow down, X to speed up, / to jump.

Program notes

0-15 Set up variables.

16-170 Set up and print scrolling ground.

220-300 Test for jump and carry it out.

310-400 Check if fall is at ramp.

400-490 Check routine.

500-600 Reset variables and increment score.

600-800 Second routine.

1000-1050 Introduction and data set up.

1060-1100 Data for options, characters and score.

Happy Bix!ay!

```

0 V=0:SC=0:LI=3:GOTO 900
1 K=1:R=PEEK(32279)
2 POKES201,0
3 POKES4277,0:POKES54276,0
4 POKES32280,0:POKES32291,0
5 POKES34276,10
6 POKES34276,10
7 D=2200
8 Z=1
9 POKES252,2
10 POKES32272,(PEEK(32272)+HIBYTE(49))+10
11 A=PEEK(32279)
12 IF V=1 THEN POKES16063,67
13 IF V=2 THEN POKES16063,67
14 IF V=0 THEN POKES16063,67
15 POKES32269,0:POKES32268,200:POKES32251,60:POKES2641,213
16 PRINT"BI SCORE= ";D:PRINT"BIKES"
17 PRINT"*****"
18 PRINT"*****"
19 PRINT"*****SPEED B-----"
20 B=0
21 PRINT"*****"
22 R=0
23 R=0
24 PRINT"BI"
25 POKES4276,00
26 POKES4277,00
27 POKES4273,00:POKES4272,00
28 R=C2="
29 R=C1="
30 R=C2="
31 R=C3="
32 REM*****
33 R=C2="R(C2)+"
34 R=C1="R(C1)+"
35 R=C2="R(C2)+"
36 R=C3="R(C3)+"

```

LV I I I I I
V I I I I

[illegible]

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```

399 IF(PEEK(33279)/AND1)=1 THEN 400
399 G=1 GOTO450
400 F=212 POK2040,F
400 REM
405 FORL=1 TO 50 NEXTL
405 SVS10704 GOTO500
410 REM---
415 POK2040-212
416 IF PEEK(33249)/3171 THEN 400
400 POK(3249,PEEK(33249)+2 FORL=1TO10 NEXTL GOTO475
420 GOTO 450
500 IF G=0 THEN 505
505 PRINT"*****      * * SHELL DONE IN *" SC=SC+1
505 IF V=0 THEN PRINT"*****".SC PRINT"00". GOTO500
507 FORR=1TO1500 NEXTR
508 POK(828,SC POK(829,L1 POK(830,V
509 CLR
510 SC=PEEK(828) L1=PEEK(829) V=PEEK(830)
520 V=V+1 PRINT"0" POK2040,200 F=200 R=PEEK(33279) GOTO1
530 PRINT"0000 0
531 FORR=1TO1500 NEXTR
532 POK(828,SC POK(829,L1 POK(830,V
533 CLR
534 SC=PEEK(828) L1=PEEK(829) V=PEEK(830)
500 L1=L1+1
570 IF L1=0 THEN PRINT"0" POK2040,200 F=200 R=PEEK(33279) GOTO1
575 PRINT"*****"
580 PRINT"00 GAME OVER. PRESS RETURN TO REPLAY."
590 GETR: IFR<CHR$(13) THEN 590
595 F=200 POK2040,F R=PEEK(33279) POK(3249,0 POK(3249,172
597 POK(3249,0 POK(3249,0 RUN
600 FORR=1TO1000 NEXTR
610 POK(828,SC POK(829,L1 POK(830,V
620 CLR
640 SC=PEEK(828) L1=PEEK(829) V=PEEK(830) RETURN
600 REM
610 POK(34276,0
620 POK(34276,12
630 POK 34277,12
640 POK 34276,129
650 POK(34276,0
660 POK(34276,129
670 RETURN
600 REM
604 POK(34276,32
640 POK 34276,30
660 POK(34276,129
670 RETURN
690 REM
1000 IF PEEK(8)=0 THEN 1
1005 PRINT"*****      ***** PEEK PEEK" POK(3200,0 POK(3201,0
1010 PRINT"00 0 BY J.P.Shiff"
1020 PRINT"0000 PLEASE WAIT A MINUTE."
1025 GOSUB 1000 GOTO1
1030 REM---POKE---IN-OUT
1030 R(0)=344000+1024
1030 R(1)=2,344000+512
1030 R(2)=44000+2040 B=0 C=0
1000 RESTORE
1055 IF B=2 THEN 1000
1060 READ R IF R=-1 THEN B=B+1 C=0 GOTO1055
1070 POK R(0)+C,R
1080 C=C+1
1090 GOTO 1000
1000 POK(30734,PEEK(30334)/AND254
1010 POK(1,PEEK(1)/AND251
1020 FORR=0 TO 511 POK(2,344000+R,PEEK(R+33249) NEXTR
1030 POK(1,PEEK(1)/OR4

```

Continued on page 19

Superbase 96

Superbase 96 is the most powerful database system available for the Commodore 64. It is a full-featured, multi-user database system that can handle up to 1,000,000 records and 100,000 fields. It is a true database system, not just a file manager. It has a powerful query language, a powerful report writer, and a powerful backup and recovery system. It is a true database system, not just a file manager.

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Master is the most powerful word processing system available for the Commodore 64. It is a full-featured, multi-user word processing system that can handle up to 1,000,000 characters and 100,000 lines. It is a true word processing system, not just a text editor. It has a powerful macro language, a powerful print manager, and a powerful backup and recovery system. It is a true word processing system, not just a text editor.



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The WYSIWYG principle

Three business programs investigated by Trevor Doherty — a word processor and two spreadsheets and WYSIWYG explained

A **WORD PROCESSOR** is often one of the first "business" pieces of software in which personal computers owners invest. The Commodore 64 is one of the best home computers for word processing, due to its excellent keyboard and readily available printers and disk drives. A large number of 1541 disk drive owners was fortunate enough to get a free copy of Commodore's own *EasyWriter* word processor with their drive — a fact I ascertained in time, said a large Commodore printer!

Source to many people already have *EasyWriter* a software house selling a word word processor must have an uphill struggle, with a large chunk of the market unlikely to buy their product, however good.

Perfection

Any word processor must have certain fundamental features. The most basic allow you to be typed on from the keyboard, stored on the screen, edited and amended as required, printed out and then stored for later retrieval. The ability to perform these, plus additional features that state of the better processors allow, means that even a two-fingered typeist can produce a perfect printed copy.

Wordcraft 64 (128/95, disk) is the latest version of a word processor with a long pedigree on Commodore machines. The program comes with a "double" (permanent) disk which plays in to format, print two. There is a 60-page manual and a data card which fits inside the 64's floppy disk, and

shows their use — an idea which shares the careful thought which has gone into the product.

On loading the program you are confronted with a hard multi-colored screen. Fortunately I quickly learned to change the colors to something more suitable. *Wordcraft* works on the WYSIWYG principle — What You See Is What You Get.

Wordprocessor fall into two categories, those which format on output to the printer and those which format as you type. *Wordcraft* falls into the latter category. Two types on the screen the way you expect it to appear in the printed output. I'm afraid that I'm not convinced that this method is strictly superior on the 64 — the screen scrolls sideways to allow a typical 80-column device more to be typed and you have to scroll from side to side to read the finished document on the screen. One advantage of this method is that we're forced with embedded format commands.

Wordcraft uses a "color" a colored bar across the screen on which you set margins and tabs. This feature is very easy to use. Other features include search and replace — for example you ask the processor to find every occurrence of the word "bank" and replace it with "tree".

The ability to take text from one document and combine it with another is provided with the "merge" facility, and a "fill file" allows names and addresses to be merged into standard letters. That, even for

within the processor is very easy, and you don't even for loaded by setting up the directory and using the cursor to highlight the various file to be loaded — no need to remember the exact name.

The ability to output still in a wide range of printers is one of *Wordcraft*'s strongest features. Though printers supported have a printer definition file on the disk, covering a good range of the most popular printers. My HP8000 worked fine. The clever thing is that if you have an unusual printer you can define your own printer definition file and save it on the disk, which half the manual is devoted to this useful feature.

Comments? A product of the highest standard, particularly strong on printer support, good value for money, but I'm afraid I couldn't get on with the sideways scrolling on the basis of a document more than 40 columns.

Formatting

A spreadsheet is another piece of software likely to be high on the list of new personal software purchases. A spreadsheet allows the computer screen to be used as a large sheet of paper ruled into rows and columns by its entering the data into a series of "cells" referenced A1, B1 etc. Rather like playing *Reversi*!

Virtually any task that can be done with a calculator and pencil can be performed and subsequently stored for future use is printed. Thus a sheet of addresses has been set up, it is then easy to extract individual figures and use the effect on the other dependent figures. That if you had a sheet showing your household budget you could see the effect of, say, a higher mortgage repayment on your finances. This feature is called "what if" calculations.

One feature which most spreadsheets offer is "linking", the ability to copy a cell or range of cells so that similar calculations can be repeated out wherever on the sheet. This allows, for example, similar summing to be carried out at each of twelve monthly columns by just defining the calculation in the first month and then replicating it. I use a spreadsheet at home to carry out many tasks, such as keeping track of my bank account.

Amstrad 64 (128/95 disk, 114/95 tape) is a recent entrant to the market. It is advertised as "100% medium code" which should give it a speed advantage over its rivals which are pure or all written in Basic. In practice I found the speed advantage was slight and negated by other disadvantages.

Command

After loading *Amstrad*, you define the size of the block sheet, and the screen displays the familiar spreadsheet format of rows and columns plus a command line. The first time I tried to use it I tried to type in some headings but found I couldn't get anything to appear on the screen, a clear examination of the 4-page booklet provided (which gives details of each of the 19 functions *Amstrad* incorporated me that to start with you have to press "F" and then press the letters key before you can type a heading or label into a single cell. The same



Wordcraft 64 — to print out on disk display (continued)

thing applies with 'C' for data and 'T' for formula. This seems to be a tedious arrangement, and I found the extra three key strokes per cell slowed down use. Other spreadsheets are able to distinguish between labels data and formula input by the initial key strokes.

Limitations

Ascoral, also mistakenly blocks the screen during such calculations, a limitation other spreadsheets avoid. Calculations can be no request by using the command 'C' so automatic calculation can be stopped, but this strangely takes place when you perform a subsequent operation, not immediately following entry of the number in question.

Two features I did like very much were the ability to change the width of individual columns, and the 'home' key which takes you back to cell A1 from anywhere on the sheet. No facilities are offered to insert extra columns or rows, delete those no more about. It is possible, however, to delete the contents of an individual cell. A limited replicate function is available allowing single cells, rows, columns or blocks of cells to be copied, but not expanded. Thus you cannot easily carry out similar calculations in each of several columns without entering them all individually.

Each time you type something in and press 'enter' the cursor jumps to a distance dictated by all previous movements—vertical and sideways. Much more serious was that I managed to 'crash' the program twice. The first was caused by the 'command-line' at the bottom of the screen not being protected. I inadvertently used the cursor key and typed in the wrong place on the screen. When I pressed 'enter' the program crashed. The second occasion was when I must have tried to save a file to tape instead of disk.

To sum up I'm afraid I cannot recommend this product, despite the competitive price. There are better spreadsheets for the money, for instance SuperSoft's *Booktek*.

PS (600-05, disk) is a spreadsheet with a difference. What sets it apart from other



disk 600-05 is competitive price

available for the disk is a facility which lets you add functions by programming your own, or third, saving them on disk and recalling them from within the spreadsheet. This powerful facility means that the spreadsheet can be customised to carry out specialised calculations beyond the ability of a normal spreadsheet.

PS is based on *Procalc* and offers the same facilities, with the addition of the programmable function. *PS* comes with a 125 page manual divided equally between the standard *Procalc* features and the additional *PS* features.

Benefits

After loading *PS* you select your sheet size, up to a maximum of 5000 cells. You may choose the column width, and one column may be a different width from the rest, to allow long titles. Labels, data and formulae may be typed straight in and *PS* can usually decide which are which. One drawback is that the screen display is put in upper case. Calculation is performed on request only by pressing 'T'. Expansion is easy using the 'C' key, but only allows a

single corner cell to be used in a row, although this may be expanded into a range of target cells. Insert, delete and move facilities are all provided.

PS has some unusual facilities which are not often seen in 64 spreadsheets. You can change the representation of numbers to graphical format, and use *Hi* (or to plot bar graphs which look very good printed) on the screen. *PS* allows you to sort both alphabetically and numerically and to search for a number, word or formula. Tables can be fixed so that they do not scroll off when scrolling round the screen. All the above features are shared with *Procalc*.

The unique *PS* programmable facility is covered in the second part of the manual, twelve additional facilities are described and included on the disk to get you started. Examples include a facility to carry out a sort in primary and secondary order and a feature to move all the data from your sheet while leaving the cells intact. Program listings are given in the manual so you can see how it's done. The possibilities are limitless. To use the programmable facility you first install your program from disk and then execute it as often as you like at the relevant place in your spreadsheet. Only one add-on module may be used at a time, but several could be called, one after another from within the main spreadsheet.

I think *PS* is an excellent product, but the market for it is limited to those who need more than a good ordinary spreadsheet can provide. If you don't need the add-ons, *Procalc*, which is about £25 cheaper would seem a good bet. ■



Programmable Spreadsheet — unique facilities

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COMMODORE SOFTWARE FILE

Split screen

A routine of *Supersoft* needs this to present
BASIC AS A BASIC loader program, which

creates a split screen. The Hi-res window area is variable, by POKEing 16019 with the start coordinate and 16018 with the end coordinate of the window area required. SYS16019 sets the routine and SYS16004 turns it off. The program uses hardware interrupts and timer values to change the

graphics mode of the screen to desired points. It would be ideal for creating a split screen such as those used on television games, with text in the lower half of the screen and hi-res graphics in the upper half.

Other applications are limited only by your imagination.

```
10 R=50000 T=0 C=0
20 PERD=1FD=-1THQHD
25 POWER.D T=T+D R=R+1 C=C+1
30 GOTO38
40 IF T<16788 THEN PRINTCHR$(147); PRINT " DATA VALUE ERROR" END
42 IF R<50488 THEN PRINTCHR$(147); PRINT " NUMBER OF DATA ITEMS ERROR" END
50 PRINTCHR$(147); PRINT " USE SYS16003H TO CALL HIRES WINDOW"
52 PRINTCHR$(17); PRINT " SYS=50446H TURNS OFF WINDOW"
54 PRINTCHR$(17); PRINTCHR$(17); PRINTCHR$(18); " TO CHANGE AREA OF HIRES WINDOW"
56 PRINTCHR$(17); " USE POKE50439,Y FOR START OF WINDOW"
58 PRINTCHR$(17); " POKE50419,Y FOR END OF WINDOW"
60 PRINTCHR$(17); " HIRES WINDOW AT 8132 TO 16191 IN MEM"
62 PRINTCHR$(17); " USE NORMAL CLEAR HIRES AREA ROUTINE"
64 PRINTCHR$(17); " IE. FORM8192 TO 16191 POKE0,0 NEXT"
66 PRINTCHR$(17); " ADJUST COLOUR MEM FROM 1064 TO 2063 TO"
68 PRINTCHR$(17); " SUIT AFTER RESEPAED FOR HIRES WINDOW"
70 END
100 DATA128,169,197,141,20,3,169,196,141
101 DATA1 3,173,17,208,41,127,141,17
102 DATA288,169,191,141,18,288,173,26
103 DATA288,9,1,141,26,288,89,96,169,1
104 DATA44,25,288,295,3,76,49,234,173
105 DATA17,208,281,17,240,5,76,8,96,196
106 DATA173,17,208,9,32,141,17,208,173
107 DATA24,288,9,8,141,24,208,169,181,141
108 DATA16,288,169,1,141,23,208,104
109 DATA168,184,170,184,64,173,17,208,41
110 DATA23,141,17,288,169,21,141,24,288
111 DATA169,9,141,18,288,78,238,136
112 DATA120,169,49,141,28,3,169,234,141
113 DATA21,3,173,17,208,41,223,141,17
114 DATA208,173,24,208,41,247,141,14
115 DATA208,173,26,208,41,234,141,26,208
116 DATA85,76,1
```

Ski slope

For jump for the unspoiled 40.26
comes from *Mini Supersoft* of Supersoft

THE OBJECT of *Ski Slope* is to avoid the
area but as long as possible a hill collecting
coins and diamonds. If you take a jump
you get extra points, but to do this you
must be going at least at medium speed.
You get a bonus life after 1000 points, and

the game changes after this, too.

Use the cursor keys to move left and
right, and control your speed with X for
slow, Z for medium and C for top speed.
Break a leg!

```
5 PRINT"### SKI-SLOPE # BY NIKILL"
10 PRINT"###USE CURSOR KEYS FOR MOVEMENT LEFT AND RIGHT."
15 PRINT"X SLOW SPEED(ZMEDIUM SPEED),C"
20 PRINT"X Z-MEDIUM SPEED,"
30 PRINT"X C-TOP SPEED."
```

Continued on page 44


```

3100 POKE36878,15
3105 POKE 36877,8
3110 POKE 36876,228
3120 FOR N=1TOS NEXT
3130 POKE 36876,8 POKE 36877,120 POKE36878,6
3140 RETURN
3499 REM JUMP
3500 IF Q=15 THEN 100
3510 IF Q=1THEN SP=6
3520 IF Q=18 THENR=4
3525 POKE L-22,32
3530 GOSUB 1888 POKE L,8 POKE L-22,32
3535 FORPR=1TOD NEXT
3540 FOR Q=1TODR
3550 GOSUB 1888
3570 FORPR=1TO 8 NEXT
3580 POKE L,8 IF Q=1THEN POKE L-44,162
3590 POKE L-22,80
3600 NEXT
3610 IF PEEK(L)+22=88THEN 300
3615 SC=SC+50
3617 IF Q=1THEN SC=SC+50
3619 JP=JP+1
3620 GOTO 180

```

Bongo Maniac

Then start unspooling the program from
Joe Garfield and Stephen Ward at

Macintosh

THESE THREE short sound and graphics
routines could be incorporated into your
own programs.

The first is Computer Maniac, which is
the sound of a computer going mad!

The second is Sound and Clamor, which
uses a synthesized sound with rather
effect.

The last is Bongo Drum, which repre-
sents the sound of someone beating wildly
on the bongoes.

```

2 PRINT"*****"
3 PRINT"HI I AM IN COMPUTER MANIAC"
4 PRINT"~"
5 PRINT"*****"
10 POKE36878,15
20 C=INT(RND(1)/#50)+175
30 S=INT(RND(1)/#255)+1
40 POKE36879,C
50 POKE36875,S
60 FORT=1TODR NEXTT
70 GOTO20

```

```

10 SP=36878
20 SC=36877
30 SP=36876
40 SP=36875
50 SP=36874
60 POKE36875,15
65 POKE36876,123
70 POKE36877,255
75 POKE36878,FORT=1TODR NEXTT POKE36875,15
80 POKE36876,155
85 POKE36877,FORT=1TODR NEXTT
90 RESTORE GOTO20

```

```

2 PRINT"*****"
3 PRINT"HI SOUND & CLAMOR"
4 PRINT"~"
5 PRINT"*****"
10 POKE36878,15
20 S=INT(RND(1)/#50)+175
30 C=INT(RND(1)/#255)+1
40 POKE36879,C
50 POKE36875,S
60 FORT=1TODR NEXTT
70 GOTO20

```


Street Bomber

**Four Members of Portland, Ore., are
also in the group.**

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Which your automobile is running out of fuel and you have to search the buildings below you to collect an order to make a safe return.

Use the no-align: baseline

1998, 1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025, 2026, 2027, 2028, 2029, 2030, 2031, 2032, 2033, 2034, 2035, 2036, 2037, 2038, 2039, 2040, 2041, 2042, 2043, 2044, 2045, 2046, 2047, 2048, 2049, 2050, 2051, 2052, 2053, 2054, 2055, 2056, 2057, 2058, 2059, 2060, 2061, 2062, 2063, 2064, 2065, 2066, 2067, 2068, 2069, 2070, 2071, 2072, 2073, 2074, 2075, 2076, 2077, 2078, 2079, 2080, 2081, 2082, 2083, 2084, 2085, 2086, 2087, 2088, 2089, 2090, 2091, 2092, 2093, 2094, 2095, 2096, 2097, 2098, 2099, 2100, 2101, 2102, 2103, 2104, 2105, 2106, 2107, 2108, 2109, 2110, 2111, 2112, 2113, 2114, 2115, 2116, 2117, 2118, 2119, 2120, 2121, 2122, 2123, 2124, 2125, 2126, 2127, 2128, 2129, 2130, 2131, 2132, 2133, 2134, 2135, 2136, 2137, 2138, 2139, 2140, 2141, 2142, 2143, 2144, 2145, 2146, 2147, 2148, 2149, 2150, 2151, 2152, 2153, 2154, 2155, 2156, 2157, 2158, 2159, 2160, 2161, 2162, 2163, 2164, 2165, 2166, 2167, 2168, 2169, 2170, 2171, 2172, 2173, 2174, 2175, 2176, 2177, 2178, 2179, 2180, 2181, 2182, 2183, 2184, 2185, 2186, 2187, 2188, 2189, 2190, 2191, 2192, 2193, 2194, 2195, 2196, 2197, 2198, 2199, 2200, 2201, 2202, 2203, 2204, 2205, 2206, 2207, 2208, 2209, 2210, 2211, 2212, 2213, 2214, 2215, 2216, 2217, 2218, 2219, 2220, 2221, 2222, 2223, 2224, 2225, 2226, 2227, 2228, 2229, 2230, 2231, 2232, 2233, 2234, 2235, 2236, 2237, 2238, 2239, 2240, 2241, 2242, 2243, 2244, 2245, 2246, 2247, 2248, 2249, 2250, 2251, 2252, 2253, 2254, 2255, 2256, 2257, 2258, 2259, 2260, 2261, 2262, 2263, 2264, 2265, 2266, 2267, 2268, 2269, 2270, 2271, 2272, 2273, 2274, 2275, 2276, 2277, 2278, 2279, 2280, 2281, 2282, 2283, 2284, 2285, 2286, 2287, 2288, 2289, 2290, 2291, 2292, 2293, 2294, 2295, 2296, 2297, 2298, 2299, 2300, 2301, 2302, 2303, 2304, 2305, 2306, 2307, 2308, 2309, 2310, 2311, 2312, 2313, 2314, 2315, 2316, 2317, 2318, 2319, 2320, 2321, 2322, 2323, 2324, 2325, 2326, 2327, 2328, 2329, 2330, 2331, 2332, 2333, 2334, 2335, 2336, 2337, 2338, 2339, 2340, 2341, 2342, 2343, 2344, 2345, 2346, 2347, 2348, 2349, 2350, 2351, 2352, 2353, 2354, 2355, 2356, 2357, 2358, 2359, 2360, 2361, 2362, 2363, 2364, 2365, 2366, 2367, 2368, 2369, 2370, 2371, 2372, 2373, 2374, 2375, 2376, 2377, 2378, 2379, 2380, 2381, 2382, 2383, 2384, 2385, 2386, 2387, 2388, 2389, 2390, 2391, 2392, 2393, 2394, 2395, 2396, 2397, 2398, 2399, 2400, 2401, 2402, 2403, 2404, 2405, 2406, 2407, 2408, 2409, 2410, 2411, 2412, 2413, 2414, 2415, 2416, 2417, 2418, 2419, 2420, 2421, 2422, 2423, 2424, 2425, 2426, 2427, 2428, 2429, 2430, 2431, 2432, 2433, 2434, 2435, 2436, 2437, 2438, 2439, 2440, 2441, 2442, 2443, 2444, 2445, 2446, 2447, 2448, 2449, 2450, 2451, 2452, 2453, 2454, 2455, 2456, 2457, 2458, 2459, 2460, 2461, 2462, 2463, 2464, 2465, 2466, 2467, 2468, 2469, 2470, 2471, 2472, 2473, 2474, 2475, 2476, 2477, 2478, 2479, 2480, 2481, 2482, 2483, 2484, 2485, 2486, 2487, 2488, 2489, 2490, 2491, 2492, 2493, 2494, 2495, 2496, 2497, 2498, 2499, 2500, 2501, 2502, 2503, 2504, 2505, 2506, 2507, 2508, 2509, 2510, 2511, 2512, 2513, 2514, 2515, 2516, 2517, 2518, 2519, 2520, 2521, 2522, 2523, 2524, 2525, 2526, 2527, 2528, 2529, 2530, 2531, 2532, 2533, 2534, 2535, 2536, 2537, 2538, 2539, 2540, 2541, 2542, 2543, 2544, 2545, 2546, 2547, 2548, 2549, 2550, 2551, 2552, 2553, 2554, 2555, 2556, 2557, 2558, 2559, 2560, 2561, 2562, 2563, 2564, 2565, 2566, 2567, 2568, 2569, 2570, 2571, 2572, 2573, 2574, 2575, 2576, 2577, 2578, 2579, 2580, 2581, 2582, 2583, 2584, 2585, 2586, 2587, 2588, 2589, 2590, 2591, 2592, 2593, 2594, 2595, 2596, 2597, 2598, 2599, 2600, 2601, 2602, 2603, 2604, 2605, 2606, 2607, 2608, 2609, 2610, 2611, 2612, 2613, 2614, 2615, 2616, 2617, 2618, 2619, 2620, 2621, 2622, 2623, 2624, 2625, 2626, 2627, 2628, 2629, 2630, 2631, 2632, 2633, 2634, 2635, 2636, 2637, 2638, 2639, 2640, 2641, 2642, 2643, 2644, 2645, 2646, 2647, 2648, 2649, 2650, 2651, 2652, 2653, 2654, 2655, 2656, 2657, 2658, 2659, 2660, 2661, 2662, 2663, 2664, 2665, 2666, 2667, 2668, 2669, 2670, 2671, 2672, 2673, 2674, 2675, 2676, 2677, 2678, 2679, 26

1000

Large Ball, definite directions

1. *Journal of the American Medical Association*, 1997; 278: 1039-1044.

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11. *Journal of the American Medical Association*, 2000; 283: 2686-2692.

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Variable A = plant position, P = percent resistant. United St. = United States.

[illegible]

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Slipping a disk too many

*Pete Gernard looks at floppy games, and as
the whole is pretty much disk-gasted*

When a program has had a vast amount of pre-release hype projected around it, it comes as something of a relief when the program concerned actually lives up to expectations. Such was the case with Commodore's *Wonderland Secret* cartridge.

However, when the program does not perform as the press releases, hand-outs, and pre-release publicity would have us believe, then the disappointment with the program is that much larger. *Alice in Wonderland* falls regrettably into the latter category.

Written by the same programmer as Androgyn's earlier success *White Magic*, this disk and joystick oriented game does have quite a good opening scene, after which poorly animated artwork takes over. The game starts when an animated Alice jumps down a rabbit warren and falls down and down and down. You have to move her around and collect flowers, keys, food and drink, which are used for jumping over humps and potholes. When Alice lands, you then have to use the keys collected earlier to enter through a variety of doors of different size (which is where the food and drink come in, to make your character grow and shrink in size, or find rooms which look better to stop the hunt).

Jabberwocky

Being led by a flying clock signals the end of this part of the game, and you are presented with a few lines of text from the *Alice in Wonderland* book while waiting for the next part of the program to load.

Now you're out in the garden, with a clockface and growing apples as you walk a pipe-walking caterpillar blows deadly smoke rings everywhere. Alice has to jump around and collect bread and carrots and pick up honey (which she immediately uses to cook balls in part two of the game), avoiding the aforementioned snake rings and rocks which these particularly violent flowers keep springing everywhere.

The third part of the program I found to be the most tedious of them all. The action has now moved on to a chess board, featuring Alice and two white knights on one side, and Tweedledum and Tweedledee

(with a tiny help from the Jabberwocky) on the other. Alice has to get from one side of the board to the other, using the knights in temporarily restricted but opportunist. Her speed of movement is made big to say the least, and once you've put a knight on the Queen's Book 7 square it appears impossible to move it again: a logical perchance?

The final part of the game is a ridiculous game of croquet, complete with flamingo as mallet (but no hedgehogs as hoops) but.

Ten levels of skill are offered to you at the start of the game, although these didn't appear to be much difference between any of them that I could detect. Not a game I can imagine returning to very often, nor graphics, theme, about the game.

Regular readers of this electronic magazine will recall a review a few months ago of a game called *Footbridge Frenzy*, written by one Paul Norman, and referred to here by Androgyn. The review was pretty favorable, although the hope was expressed that there might be some better software on the way shortly.

Well, *Current of Knowledge* is the next offering from young Norman, and if the standard of this game is anything to go by, he's a mighty fine programmer who is improving all the time. This is certainly an adventure game, but with one major difference from most of them. Not only

does it rely greatly on the use of graphics, but also your only control is at the player is via a joystick rather than the keyboard.

You have a number of levels, to explore, and these are depicted on the screen in a glorious 3-dimensional display which scrolls in all directions as you move your hero around the place. He also shoots and shoots ropes (which produces some interesting graphical displays at times), and along on his journey, jump all over the place, and also shoot any of the many monsters that come at him. Falls at a great distance are to be avoided, as is keeping your head on a rock above you. Few lives are awarded in all, and you're rewarded at any loss by a number of lives (which are at the top of the screen).

Insider

This is not an easy game to play, and the beginner will do well to practice moving about at the top of the screen before plunging in and trying on the game itself. In one place, where the game gets rather tricky, there is an obstacle to help you out. Also, and this is a criticism of all games that rely on the joystick to produce a number of different levels, it is all so easy to see and move the monster and end the playing it, and on the face of a coin.

That said, this is a very worthy follow-up to *Footbridge Frenzy*, and if enough games enthusiasts have got disk drives, it should do very well indeed.

Added to from Androgyn, *Footbridge Frenzy* is aptly named. I guarantee that anyone who has a copy of this game will be driven frantic by the unusual background that accompanies it.

If this game was played on total drive, it would be a reasonable (but not a great) piece of software. However, each of the ten screens has a supposedly different piece of music, being played while you're on that screen, and the quality of the music is quite superb. Some of the tracks being played are a little obscure (Bach's *Minuet* by Paul Simon surely was not known by too many people), but then, considering a simply wonderful.

Even on the initial display, before you start playing the game, there's a superb rendition of *Cherry Lane Thing Called Love*, the Queen number.

Well, the game itself? *Footbridge Frenzy*, a ▶



Alice in Wonderland — graphics good, game pretty "

4 telephone requests, one day happens in a minute across a magical telephone network. Part of gold is almost all over the place, and you have to get them all. However, those parts of gold are guarded by various constructs, and one needs to be they very closely. Life is made a little more complicated for the fact that you can't go through telephone poles and have to climb up and around them, whenever the doors can reach directly through.

Interface

Apart from the music, nothing much changes from level to level. It does get a bit harder, but not by much. An interesting attribute is offered between some of the levels, which is a worth playing to get to see. On the first episode, we are one level being chased and finally caught by a massive frog, but on the second one Franklin has his revenge, and after being chased off one island by the frog, he the frog he is appears driving a massive tank and blows the frog to smithereens.

So, for all those who like trying to score that moving one, a game to keep an eye (and ear) out for.

One company who's gone into this board game in a big way is Microbial Games in Cornwall, and the rest of the disk games looked as the music being to them. Microbial, as we all should know, made their name by producing a lot of good Dragon software. Unfortunately, with only a couple of exceptions, they don't seem to have got the hang of the 64 yet.

Grabber is an unusual variation on the main theme, with two scores instead of one. Both scores are divided up between the music, and it is your job to go around and collect all of them. However, the music are guarded by what Microbial refer to as Ghouls, and they have a habit of only of bumping into you and killing you, but also of making off with your weapons after you're totally smashed to bits.

You wrap around from east to west by pressing the fire button, which is a convenient way of getting out of the way of a particularly nasty ghoul. On some of the later levels the only possible way of completing the game is by continuously wrapping around. This is because in one case you're represented by a very unusual looking character, who will walk through



Grabber Fever — a beautiful journey

walls, while the character in the other score is simply a square hero which has the magical ability to break walls made of stone that were made by the frog by jumping from one character to another you can get your way out of some pretty sticky situations indeed.

Controls

Some pretty crude graphics are used throughout the game. I expect to lose a lot to something a lot more dramatic than just squashing a square in both directions. Also the sound, as with a lot of Microbial games in fact, is indeed bordering on the awful, and although I don't particularly like playing games in which this or one character when it happens to take all the rules and played as in blood power and glory.

An unfortunate man from a company whose reputation precedes better than this.

You see a full page advertisement for a game, and you immediately begin to think that perhaps that game is going to be a bit special. **Arms 2000** does not live up to its advertising, and indeed it was quite hard to remember what the game was about without referring to my notes when it came to writing the review, not the sign of a good game.

It is one of those offerings where you start off in the middle of the screen, and have to shoot the variety of alien who march mindlessly towards you at the time in contact with more Microbial disk games there are absolutely no instructions supplied either with the disk or on the screen, so a couple of hours with the bad while

you try and figure out which part the control might be go to Part 2 in the screen, if you happen to try a tape. Another peculiarity about the game is that it started the classic motor going when it finished loading. Why is that? It's totally unnecessary, and one can only assume that the program can't yet totally or home with the 64.

Nothing in particular changes from level to level. More alien appear in the same homogenous tradition, but nothing that seems to happen. A pity that I, and everyone else here at the Microbial Games company, cannot very quickly find out.

Most of you will probably be familiar with the game of Pong, or Bump as it is sometimes called, but for the benefit of the Discos Music magazine, let me give you a summary of Pong.

Business

The game takes place in the frozen wastes of the north, where you a cheerful little penguin, suddenly find yourself being attacked by hordes of thousands of penguins in order to get rid of the enemies you first to push blocks of ice around, and hopefully on the highest against the side of the screen by doing so. Points are scored for every block killed, and in this Microbial version of the game you also get points for every block of ice moved, regardless of whether or not it succeeds in getting rid of one of the enemy.

The original game is hard, and can remember spending many a wet winter night on a sofa bed so get your arms on the highest score list. This, however, is not a worthy version of that original program.

Not a game that went down well here, and even our games team covers most the groups I don't really see this doing very well.

The remaining Microbial games are, differently in a class above the previous ones, and **Danger Ranger** had one playing a bit a long, long time.

You control a little man whose job it is to collect ten keys from the Chamber of Fate. The Chamber of Fate is a lot like more than a collection of yellow points across the screen, with a handy transporter at the bottom to take you back up to the top should you slip on a five points at all, with two (yes) per point, each one is guarded by something or other Microbial refers to them as floating saws,



Grabber — don't get caught in the games

radioactive beam, and young men.

Your little man has the ability to move left or right, jump or duck, and fire at one of the hazards that threaten him. If very message to collect all ten keys you are then taken onto the next level, which is very difficult to get through. You have to run along a series of blocks, watching out for drops of acid and for the four demons that guard this level. Unfortunately, the drops of acid appear at random, and since you start off at the top of the screen and then move very quickly downwards, you can guarantee on losing at least one life on this level.

Spaced out

If you manage to complete that it's back to the first stage again, but with more enemies out to get you. An increasing and interesting game looking special in the way of graphics at second, but a few ideas and one that has been mostly implemented.

The Combat chapter seems to go everywhere, and now we find him deep at *Combat in Space*, a game that seems more than a passing resemblance to *Hyper* from Visiware.

Combat has been out for a number of months in the heart of the Macintosh sales



Danger Danger — is living here on 1 moving and



system. On loading an each phase you have to collect *Combat*'s ship by flying around in time get propelled way to a number of full damage conveniently used on the screen. To make his more interesting, you can only carry one but "good" at a time, and the longer you take to collect them all the more enemies come flying during the screen at you. You can shoot them down, but by the time you're on the last couple of pods there's so many of

them that you're almost bound to lose at least one life.

Challenge

After acquiring enough fuel, you have to where around and collect as much treasure as you can before you go forward to take off and land on another planet. To escape the tedium of having every level looking remarkably the same, occasionally you will get an engine malfunction and have to send a pipeline shuttle to obtain spare parts from some spot where co-ordinates are given on the screen. Meanwhile the evil forces have planted a bomb on your spaceship, so the shuttle is also involved in a race against time to get back and take off before the bomb explodes.

This is quite a challenge. Still, it usually managed to survive.

After that it's back to the main game again, and more heads down in movement, machine gun blasting. Good fun, even if it isn't particularly original.

At all overall conclusion, the standard of disk based software we'll get up to the highest quality arcade games, and once again we can only go back and wait for the better software that is sure to come from overseas, somewhere. ■



Combat in Space — plunking the asteroids

You can win a Disk Companion

on SunSoft's easy-to-enter contest

THIS IS YOUR chance to win a copy of *SunSoft's* best-selling Commodore 64 Disk Companion, by David Lowmoot and Mark England. The book is the authoritative guide to making the most of the 1040 disk drive, with simple instructions on the proper use and pricing of disk software, backed up with programs for manipulating the disk directory, recovering "misplaced" files, merging files and displaying the contents of the disk operating system.

If you can't wait the

difference between sequential, relative and random access files, this is the book for you! Personally 27 99 on the shelves but our lucky winners will receive five copies from SunSoft. Simply answer the ten questions and complete the card below. One word your entry to Commodore Horizons Disk Competition, 12/13 Little Newport Street, London WC2, with your name and address, no later no later than the last working day of October. Normal competition rules apply.

1) What is the name of the program used for copying 1040 disk "Tracks"?

2) What is the meaning of the abbreviation BANI?

3) What is the microprocessor found in the 1041 disk drive?

4) How many bytes can be stored in one sector of a 1041 disk?

5) How many tracks are there on a formatted disk?

6) Is it dangerous that when a disk has the RED light on the GREEN light is on?

7) What is the proper name of Commodore's "New" disk drive?

8) And what is the name of the disk's secondary replacement?

9) What is the 1041's normal device number?

10) Which is not a disk command: SCRATCH, VALIDATE, RENAME, NUMERATE, COPY

Remember to complete at 15 words or less — "You should never slip a disk."

Delving into disk drives

A further adaptation from The Commodore 64 Disk Companion by David Lawrence and Mark England

THE FIRST use that anyone makes of a disk is to store programs. There is no doubt that, if you enjoy computing and are going to make them occasionally, the difference in speed with which you can access programs makes the cost of a disk drive worthwhile compared to a cassette recorder.

At the same time, it is always surprising how little care most people take in the keeping of programs that they have spent long periods developing. Failing to save regular updates when a program is being developed, failing to check that a program has been properly saved, keeping only one copy of important programs and stopping development by leaving them unused exposed to the elements. Given before are one or two common-sense rules which it comes to saving programs.

As you develop new programs, SAVE them regularly. Like any other micro-computer, the 64 can lose programs if there is a momentary surge in the electricity supply or if someone backs the plug, or even because in your programming you manage to upset the 64's registers. While most work you will have lost will depend on how long it has been since you last saved your program. If a program is being edited rapidly, you should not normally expect to retain more than 15 minutes without resaving the program. When a program is being debugged, or that relatively brief changes are being made, perhaps you might store it as often as 10 minutes, but you can depend on the fact that if you do not save programs regularly you will, sooner or later, lose an important program that has taken a long time to make.

Saving

In order to embark on a policy of SAVING programs regularly, you need first to know the command which will store a program on the disk drive. If you have previously been working with a Datamaster cassette recorder, then you will have become used to the format:

```
SAVE"<PROGRAM NAME>"
```

```
to SAVE a program or
```

```
LOAD"<PROGRAM NAME>"
```

when LOADING a program back into memory.

With your disk drive installed, the situation changes slightly. While the 64 can now do perfectly well with the 64K it is designed to

the assumption that it will be used with a cassette recorder. This fact allows users of a tape recorder to get away without specifying any very important piece of information, namely the number of the device on which the program is to be stored. The device number of the cassette recorder is one, and when the operation:

```
SAVE "PROGRAM"
```

is entered, the 64 assumes that what is meant is:

```
SAVE "PROGRAM":1
```

When working with disk, the programmer cannot rely on the 64 to put the important piece of information in, in the format of the SAVE command will normally be:

```
SAVE "<PROGRAM NAME>":2
```

```
and of LOAD
```

```
LOAD"<PROGRAM NAME>":1
```

When a single disk drive is bought from the dealer, it is set up generally to think of itself as device eight and it will respond to any instructions addressed to a device with that number, like the SAVE and LOAD commands in the last section. An increasing number of people, however, are discovering the advantages of running more than one disk drive. With more than one drive, however, a problem arises in that the device must

know which of them is being addressed at any one time.

Devices

To overcome this, 64K drives are built with the ability to change their device number so that a command like, for example, to stand in the line:

```
SAVE "PROGRAM":2
```

will store one of the drives, leaving device eight completely unaffected. There are two ways in which disk drive device numbers can be changed: in hardware and in software. It is to say you can either make a modification to the equipment itself or you can use a program to make a (temporary) change. Of the two, if you are going to be permanently using more than one drive, the hardware solution is by far the best. It normally involves making a small cut in a single track of the printed circuit board inside the drive. Details of this may go as far as the 1941 manual but they are not very clear and, frankly, we would recommend that when you purchase your second 1941 you do not do the understanding that the dealer will do the two standard work involved. If your dealer handles it the way they perhaps you might consider finding out what he is doing.

Rescues

To change the device number of a disk drive with a program is not difficult (see Chapter 13), but it can become tedious, mainly due to the time many times the drive is needed on. Even so, if you are merely borrowing a friend's drive for the day, the software solution is a better one than repairing his drive to prove.

To make saving a program easier and to encourage yourself to do it, it is a good idea to build a program saving facility into each program you develop, along the following lines:

```
1 GOTO 1
```

```
2 SAVE "DISKPROGRAM NAME":2
```



```
VERIFY "PROGRAM NAME".A
STOP
```

VERIFY

Including such a routine in a program has the virtue that you are unlikely to over the program under the wrong name due to a typing error. It can be saved simply by entering GOTO 3 as it is coded below. A virtue that all your programs can be stored with a uniform GOTO 3 if you do not wish to use an M/N and wipe out any stored variable.

Two features of this routine need some explanation, the presumed VERIFY and the modifier 'A' at the beginning of the program name.

One of the main reasons for building the SAVE routine into the program is shown in that it can then be combined with VERIFY. The purpose of VERIFY is to check that a program stored on a specified device is the same as that stored in the program currently in memory, so that a program has been correctly SAVED. The format of verify

```
VERIFY "PROGRAM NAME".  
<DEVICE>
```

where PROGRAM NAME is the name of a program stored on the device. Note that it is an assumption that the name of the program on the disk is the same as the name that you have allocated to the program in memory. The name of the program is stored on the disk's directory but not with the program itself and so must be moved in the memory of the 64 for the current program. All you are doing is giving the disk drive the information to find a particular file.

Verify

Unlike the current monitor, the disk drive requires no work from the user when VERIFY is employed. In the basic SAVE routine in the previous section, the drive will automatically search for the program which has been SAVED without the user entering

Fig 2

```
10 DIM DIR(100) DEF = 0
20 CLOSE #100
30 FOR I = 0 TO 99 : I
40 PRINT CHR$(10) DIR(I)
50 NEXT I
600 REM *****
610 REM READ THE DIRECTORY
620 REM *****
630 DP = 0
640 OPEN LOGFILE,"F"
650 GET = LITS GET = LITS
660 GET = LITS GET = LITS
670 IF TR = "" THEN CLOSE #1
680 RETURN
690 GET = LITS GET = LITS
700 GET = LITS
710 IF TR = "" THEN CLOSE #1
720 THEN 1000
730 IF TR = "" THEN 1000
740 GET = LITS
750 IF TR = "" THEN 1000
760 TR = TR + GOTO 1120
770 DIR(DP) = TR DP = DP + 1
780 GOTO 1000
```

In one respect the disk drive is a little less easy to use than the Commodore monitor. When you wish to store a program for a second time on tape, all that you have to do is reenter the tape and name the SAVE command — the previous program will be overwritten. Not so with the disk drive, for it is specifically designed to prevent you from overwriting the contents of accidentally overwriting a file by accidently SAVING another of the same name. This is due to most recommendations but when overwriting a version of a program are SAVED it can become a little tedious. The Disk Operating System (DOS) provides a function to overcome this problem in the form of the modifier 'A' attached to the front of the name of a file (whether a program file or any of the other kinds described later) — with the exception of relative files.

When the DOS comes across a filename which begins with 'A' it immediately scans the current disk to see whether there is a program with the same name as the specified filename less the 'A'. If there is not, then the program is stored normally. If there is a program of the same name, the program being SAVED replaces it on the disk — the previous version will not be recoverable once it is overwritten.

Caution

A note of caution has to be inserted over the use of 'A', due to the fact that the routine which runs the facility has a 'bug'. On disks which are becoming full, you will sometimes find that the use of 'A' will successfully store the file named, but will corrupt other files on the disk. The reason for this is the 'A' is found under some circumstances, to fail to appear in the Block Allocation Map (BAM) the correct position of the sectors on the disk which it has used or which it has tried, so that subsequent files are SAVED in places they should not be.

There are several solutions to this problem. 1) Include a VALIDATE com-

mand in line 2 of the basic SAVE routine earlier in this article. This reconstructs the BAM and ensures that there will be no corruption, the only downside, I being that I can only longer to VALIDATE than it does to format a disk. 2) Shut off by calling the program something like TEST01 and, each time you SAVE it, LIST line 2 and change the number on the end of the program name. This is perfectly simple but it does take up a bit of disk space while a program is being developed. 3) Ignore the bug — it will very seldom, if ever, affect you. 4) Use, of all, an RENAME and DELETED, two housekeeping commands, to create a much more reliable and secure method of file filing programs and other types of file.

Reliable

The process of keeping a valuable program safe does not end once you have stored it on a single disk. Data can be damaged or accidentally corrupted in some way. If a program is worth keeping, then you should always have a second copy of it stored somewhere safely away from where you normally keep your disks.

In addition, don't neglect the relative safety and reliability of tape for backup copies of important material. A second disk drive built can be extremely reassuring if your only copies of the required program are on disk. If exposure is anything to go by, most people running out with a disk drive will ignore this advice, at least until the first occasion on which their costly loss a program on which they have been working for weeks.

In last month's article, we included a brief description of the disk directory. Here then

Fig 3

```
10 OPEN #1:5 OPEN LOG="F"
20 DIM DIR(100)
30 CLOSE #100
40 FOR I = 0 TO 99 : I
50 T = ACCORDING IF TR=10 AND
T = 10 THEN PRINT MID$(DIR(I),4,4)
60 NEXT I
70 CLOSE #1 CLOSE #2
80 END
900 REM *****
910 REM READ THE DIRECTORY
920 REM *****
930 DP = 0 NT = 0 NS = 0
940 TR = NT NS = NS
950 PRINT "A" "F" "A"
960 PRINT "A" "F" "A"
970 GET = LITS NT =
980 ASCII = CHR$(90)
990 GET = LITS NS =
ASCII = CHR$(90)
1000 IF TR = 10 AND S = 0 THEN 1040
1010 PRINT "A" "F" "A"
1020 FOR I = 0 TO 1
1030 GET = LITS GET = LITS
1040 DP = DP + 1
1050 DIR(DP) = ""
1060 FOR I = 0 TO 20
1070 GET = LITS
1075 DIR(DP) = DIR(DP) + LEFT$(
TR + CHR$(90),1)
1080 NEXT I
1090 IF NT THEN 1040
1100 RETURN
```

Fig 1

```
10 REM *****
20 Type of file to use
3 = Unnamed or Deleted file
4 = Unnamed SPCreated file
5 = Unnamed PPOCreated file
6 = Unnamed Unk file
7 = Unnamed Relative file
110 = Unnamed Deleted file
120 = Unnamed SPCreated file
130 = Unnamed PPOCreated file
140 = Unnamed Unk file
150 = Unnamed Relative file
160 = Unnamed SPCreated file
170 = Unnamed PPOCreated file
180 = Unnamed Unk file
190 = Unnamed Relative file
200 = Unnamed Deleted file
210 = Unnamed SPCreated file
220 = Unnamed PPOCreated file
230 = Unnamed Unk file
240 = Unnamed Relative file
250 = Unnamed Deleted file
260 = Unnamed SPCreated file
270 = Unnamed PPOCreated file
280 = Unnamed Unk file
290 = Unnamed Relative file
300 = Unnamed Deleted file
310 = Unnamed SPCreated file
320 = Unnamed PPOCreated file
330 = Unnamed Unk file
340 = Unnamed Relative file
350 = Unnamed Deleted file
360 = Unnamed SPCreated file
370 = Unnamed PPOCreated file
380 = Unnamed Unk file
390 = Unnamed Relative file
400 = Unnamed Deleted file
410 = Unnamed SPCreated file
420 = Unnamed PPOCreated file
430 = Unnamed Unk file
440 = Unnamed Relative file
450 = Unnamed Deleted file
460 = Unnamed SPCreated file
470 = Unnamed PPOCreated file
480 = Unnamed Unk file
490 = Unnamed Relative file
500 = Unnamed Deleted file
510 = Unnamed SPCreated file
520 = Unnamed PPOCreated file
530 = Unnamed Unk file
540 = Unnamed Relative file
550 = Unnamed Deleted file
560 = Unnamed SPCreated file
570 = Unnamed PPOCreated file
580 = Unnamed Unk file
590 = Unnamed Relative file
600 = Unnamed Deleted file
610 = Unnamed SPCreated file
620 = Unnamed PPOCreated file
630 = Unnamed Unk file
640 = Unnamed Relative file
650 = Unnamed Deleted file
660 = Unnamed SPCreated file
670 = Unnamed PPOCreated file
680 = Unnamed Unk file
690 = Unnamed Relative file
700 = Unnamed Deleted file
710 = Unnamed SPCreated file
720 = Unnamed PPOCreated file
730 = Unnamed Unk file
740 = Unnamed Relative file
750 = Unnamed Deleted file
760 = Unnamed SPCreated file
770 = Unnamed PPOCreated file
780 = Unnamed Unk file
790 = Unnamed Relative file
800 = Unnamed Deleted file
810 = Unnamed SPCreated file
820 = Unnamed PPOCreated file
830 = Unnamed Unk file
840 = Unnamed Relative file
850 = Unnamed Deleted file
860 = Unnamed SPCreated file
870 = Unnamed PPOCreated file
880 = Unnamed Unk file
890 = Unnamed Relative file
900 = Unnamed Deleted file
910 = Unnamed SPCreated file
920 = Unnamed PPOCreated file
930 = Unnamed Unk file
940 = Unnamed Relative file
950 = Unnamed Deleted file
960 = Unnamed SPCreated file
970 = Unnamed PPOCreated file
980 = Unnamed Unk file
990 = Unnamed Relative file
```



we have taken the location of the directory, in allowing the user to examine the contents of a disk and to allow the Disk Operating System to find specified files on the disk, rather than provided. In the sections we shall take a brief look at the directory, its format and the way in which it may be directly accessed by the user.

In last month's article the overall layout of the tracks which make up the directory is given. Examining the table shows that the directory is held on track 14 of the disk, beginning at sector 0. The first sector of the directory is given over to the Block Allocation Map, but the remainder of track 14 is reserved for the details of individual files on the disk. Each of these sectors is capable of holding the details of eight files. Given that there are 17 sectors on track 14 of the disk, sample addresses show that the maximum number of files which the disk can hold, regardless of how much space is free, is 136, or 144.

When the overall structure of the directory, the format of the entry for a single file is given in Table 1.

The file types, stored in byte 0 of the entry, can be made use of in a DOS SCRATCH program, where file types are altered to simulate files which were registered in the directory as having been deleted.

Filename

The first track and sector bytes, and the filename itself, can be used by a program to trace through the sectors allocated to each particular file and thence to display the name of the relevant file against each sector on the disk. In normal use, the purpose of these bytes is to allow the DOS to search through the directory for a specified filename and then to find the beginning of a file which it has been instructed to access.

Relative files are in fact made up of two quite separate sections, one containing the data and the other recording where the sectors holding the data are on the disk. The table shows that the start address of the second part of a relative file is held in bytes 01 and 02, while the fixed length of each record in a relative file is held in byte 03.

Bytes 04 and 07 are new to us, but they are a quite simple. When a file is SAVED or OPENED using the "RD" modifier to specify that any previous file of the same name and type is to be overwritten, these bytes serve the purpose of holding the starting track and sector until the new file has been created.

Directory

Finally, when the directory is displayed for the user, the size of each file in terms of the sectors used is given with it, and this figure is stored in bytes 08 and 09 of the file entry.

In all, each individual file entry in the directory takes up 10 bytes (0-09). In order to space the eight possible entries regularly within the 136 bytes of the sector, two extra bytes are added to the end of the first seven entries. These bytes contain no useful information, their purpose is only to allow the DOS to scan along the directory in steps of 11 bytes.

There are two main ways in which the directory may be read. In its loading a into memory with the command LOAD "":<DEV>, where DEV is the device number of the particular drive. When loaded in this way, the directory is treated as such the same manner as a program file, and any program previously in memory is lost. Loading is possible because the "P" indicator in the DOS that it has to translate the directory so that it is on the disk into program file format, treating each entry as if it were a

program file, supplying the auto bytes to track lines and sectors for each byte. In other words, the format supplied to the 84 when the LOAD "P" command is entered is entirely different to the format of the directory on the disk itself.

2) By reading the directory from the disk under program control. The 'DOS support' software provided first with later 1344s provides a new means to accomplish this and gives the contents of the directory to the system without interference to the current program. It is, however, quite possible to read the directory from BASIC. Given in Figure Two are two short programs which will load the contents of the directory into an array, the first by reading the directory file much as a program file would be read (see Chapter 8), and the second reading the disk more directly.

Array

The DOS supplies the directory in the form of a program file, with every filename built into a separate line and the whole thing properly structured with link bytes and so forth. There is no point in trying to compare what is being read by the GET statements with the contents of the table at the beginning of the chapter, since there is almost no relation between the two. What is being read here is not the directory itself but the translated version of the directory supplied by the DOS.

Figure Three gives a program for reading into an array from disk.

Lines 10-20 This section opens up the contents of the program. Its three main functions are to open the user channel and set up the allocation of a disk memory buffer, to call up the user module, and then to print out selected files from the array.

Lines 1000-1200 The overall function is to read the contents of the directory into the array.

Lines 1200-1300 The contents of a single sector are sent into the buffer and the buffer pointer set to the beginning of the buffer. The first sector to be read will be track 14, sector 0.

Lines 1300-1400 The first two bytes of the sector, which are pointers, are obtained and stored in the two variables N1 and N2, standing for Next Track and Next Sector. On the first pass through the machine, the sector picked up will be the RAM, in the program immediately moves on to the next sector.

Fig 4

```
1000 GOTO 1300
1100 REM *****
1200 REM READ 14th DIRECTORY
1300 REM *****
1400 IF = 0
1500 OPEN DEV:R,"P"
1600 GET #0:1 GET #0:1,1
1700 GET #0:1 GET #0:1,1
1800 IF 1 = 1 THEN CLOSE #
1900 RETURN
2000 GET #0:1 GET #0:1,1
2100 GET #0:1,1
2200 IF 1 = 1 THEN >CH1(1) AND 1 = 1
2300 THEN 1300
```

Lines 1000-1080 The buffer pointer is set back to the beginning of the block, then the right file pointer contained in the sector are successfully read. This involves discarding the two unused trailing bytes and then obtaining the next 36 characters. The character array is then placed in a line of the array L2.

Lines 1090-1200 If the next track pointer indicates track 6, it is a sign that the sector which has just been dealt with is the last in the directory.

Given the flexibility of the system provided by the LOAD "B" method and the DOS support facility to pass the directory, there are few options on which it is worth making the directory itself. One use, however, might be whenever an operation is to be performed on multiple files. Very few commands could be used with the pattern-matching facilities that the DDI supports. With a little bit of programming, however, it is relatively easy to construct routines to carry out an operation on a whole series of files which reside in certain sectors, and then depends on the ability to read and make use of the information contained in the directory.

Figure 4 gives a program which will repeat an operation on a number of files.

Lines 1000-1110 The module to read the files from the directory using the list of the two methods illustrated in the second version of this article.

Lines 1000-1090 These lines compare two strings, one of which is the name of a file taken from the directory, the second being a string input in the test module

which is the pattern against which all the disk files are to be matched. The pattern may be set up using the "*" and "?" characters. The only important product of the module is the value of the variable SAME. If the filename being considered by the module matches the pattern, then the value of SAME = 0; if not, it means not, otherwise it will be some other instance of the variable only.

Lines 1090-1200 This section is the main control module, which first calls up the module to load 1000 to read the directory into the array D2, then reads successive file names to the preceding module for comparison with the pattern input by the user. An exit facility is provided in the form of the command of TVL, which repeats the type of the file. No use is made of this at the current program but you might also employ it to exclude certain file types from an operation, regardless of their name.

Results

In actual use, there would need to be another module specifying exactly what action was to be performed on a file which matched the pattern. This exit routine would be written as another subprogram and would be called by the GOSUB at line 1110. Now, since there is no valid line number at 1180, the routine cannot be run immediately in its present form — you must first add the new section specifying the action to be performed. Given below is an example procedure illustrating the use of the REPEAT facility.

1) Enter and SAVE the REPEAT program given above.

2) Take a disk which contains no important files (otherwise, any so-wrongly formatted a new disk and SAVE on it three files with different names — the content of the files is irrelevant, but the filenames should be less than 36 characters long).

3) LOAD the repeat facility and attend it by entering the following one or changed line:

```
1000 GOSUB 1000
1000 REPEAT*****
1000 REPEAT NAME ALL FILES
1000 REPEAT*****
1000 OPEN L2:IN 13
1000 COM="FILENAME?" + N2 +
      " = ?" + N3
1000 PRINT 13, L2:IN
1000 CLOSE 13
1000 RETURN
```

4) SAVE the attended program under the name REPEAT.

5) RUN the program and, when asked to enter the pattern, simply press RETURN which enters a single character indicating that any filename will be acceptable so a match.

6) When the program terminates, load the directory and you should find that every one of the files on the disk has a "C" at the beginning of the filename. If so, you have successfully carried out a procedure which would be impossibly by means of normal pattern matching.

The Commission of Data Components, by David Lawrence and Mark England, is published by Sumitran Books in £3.95

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Cracking the code

Book: Mastering Microsoft Code on your Commodore 64
Author: Mark Greenwald
Publisher: Janskyfax
Cost: £1.95
Reviewer: C. Fitzsimons

It is usually very easy to find a book that claims to be able to teach you something quickly and easily, especially when the subject is as popular as M/C. However, in this instance, the author's claim is not too exaggerated.

The book is well laid out in sections that follow an order well known to other. The style is easy on the brain and each new topic is adequately explained with example programs.

The book begins with a 'review' of all the Assembly commands and programming modes of the 6502 chip. Also included here is a listing of BASIC commands — a good A-Z/Dex/Who — for you to refer to. Unfortunately, I could not get the program to work for me. Although it was being SAVED on the tape, it refused to come out of holding when asked to LOAD. There is also a short chapter on the time to turn on/off at the wrong memory location. If you don't have an assembler of your own to test it, you could have a problem.

Section 2 shows you how to use your new-found knowledge to gain advanced Topics covered include Smooth screen scrolls, Sprite manipulation, Interrupts, Music, Beams and Hires graphics. There is also a sub-section showing how to address Basic commands. All these subjects are well explained and are shown to work by using excellent examples that could easily be used to good effect within a larger program.

Section 3 concerns all the 50M commands and explains how to use them. An Appendix has the usual contents — memory maps, Manual jump table, ASCII charts, etc.

Considering the subject matter, the book is very readable as well as being instructive and I think the market is to be congratulated for its efforts. For anyone wishing to learn M/C on the

64 it would recommend this book — but with some reservations! (194)

SUPERNOUS rating!

Manual labour

Book: Getting the Most From Your Vic 20
Author: Fred Lohrsh
Publisher: Prentice-Hall - Mary Tim (USA)
Cost: £5.95
Reviewer: David Shepherdson

Here is a book that picks things where other guides and manuals have left. So much the publisher's credit! Personally, I would say that the material it picks up from is the one supplied with the machine by Commodore. However, if you do not wish to delve quite as deep into the Vic as the Reference Guide takes you, then this book will make an excellent second to third addition to your computing library.

Section one takes you step by step through many tiny programs. The programs range from simple scan rates and how to display them effectively, to quadratic equations, music demos and even how to incorporate a second data-point program. The chapter on graphics is

clearer, you should have no problems viewing them. One thing I do feel however, is that some of the programs could be tidied up a little and more use could have been made of multi-sequential lines. Otherwise, an excellent book for the beginner, and quite a useful book for the more advanced user.

Worthy but dull

Book: Basic Subroutines for Commodore Computers
Author: Eddie Adams
Publisher: John Wiley
Cost: £15.50
Reviewer: Charles Durrell

Eddie Adams makes no claims to be the Vic-For-CRM's graphics or sound potential. The Basic Subroutines contains a 'no frills' library of modules designed to facilitate saving and converting operations of the 'square' instructions to square 'color' and 'lines' to Hewlett type. They will run on most versions of the Commodore — For family and, with minor amendments on many other 'Basic' series.

If you are the kind of chap who regularly needs to convert, say, Radians degrees, you will probably be able to do so on

A second instance and to have at your shelf, should you ever need a program to calculate your astronomical altitude or render milliseconds as memory time. Hewlett per square meter (sorry, meter), has one which, I feel, differs little greater benefit and will test but value in the average study area.

Well in advance

Book: The Advanced Commodore 64 Handbook
Authors: Peter Lupton and Peter Robinson
Publisher: Conway
Cost: £5.95
Reviewer: Phil Durrell

Let us suppose you are an enthusiastic user of the 64, who is proficient in Basic and would like to go further. You have obtained Commodore's Programmer's Reference Guide but find parts of it too technical. You would particularly like to experiment with sound and hires graphics, to Basic and Assembly, to understand the Basic interpreter and to add a few extra commands to Basic. The trouble is that you have been unable to find a suitable book to assist you.

Look no further! This superb volume is the very thing you need. Included as a companion to the Commodore 64 Handbook by the same authors, it stands on its own as a well written, informative and useful volume for any 64-power's bookshelf. As well as covering the points mentioned earlier, it provides a comprehensive guide to the use of files and pointers in a manner far superior to Commodore's own software. Add to the numerous listings of programs, examples, and utilities, and you have a publication which is hard to read.

This is indeed a book to dip into at random and explore in depth. It is packed with information presented clearly and logically, with several helpful appendices. It would almost be worth £5.95 for the Hires routines alone. My only criticism is of the index, which is practically non-existent, but compared with the rest of the book this is a minor irritant. Highly recommended!



excellent, one of the closest I have seen. Anyone who is serious on just how to obtain and use User Defined Graphics should find that this section will answer about 99% of their queries.

In Section two, there are 42 application programs ranging from balancing your chequebook to a music mixer. All the programs should fit the new expanded Vic and, as character codes are used in the listings instead of control

your pocket calculator is half dollars. But — also worth this — Adams has devised a memory table routine that systematically corrects your spelling of tricky words like Fahrenheit or Komatiki.

The range of subjects covered in these 300-odd pages is impressive, topics include angles, area, business profiles, accuracy, storage, component values, logarithms, pressure, volume measurement and many others.

100

Abstract

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67 Anderson, Daniel. *Fluoride*. New York: Methuen, 1970. 200 pp.

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Continued from C1
 (continued on page 100)
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Meet Percy & Monty

Win two games for the 64 from Graeme Graphics in Tony Roberts' contest

LIFE IS never boring at the Mail Neck Micro-Club — the members there're all playing *Dungeons Adventure*, and things have become so heated that Harry, Thomas and Zee have all built cardboard models of the Dungeons in an attempt to master the game.

One of them has got a wrong, however, and will come in a sticky end. Look at the three diagrams and decide which is the odd one out — each maze is formed from a different angle, remember.

If you think you've solved the puzzle, complete the disclaimer in the apt, amusing and original manner in 100 words or less, and send your entry with your name and address to: Competition Corner, Commodore Horizons, 11/13 Little Newport Street, London WC2N 6LP.

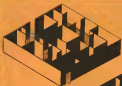
Ten lucky winners will each receive copies of the Graeme Graphics games for the 64, *Percy the Petty Pigman* and *Monty Male*, which cost £7.95 in the shops.

Percy the Petty Pigman is a fast-moving arcade game written by Tony Corcoran, in which you must help Percy build his nest and avoid speeding cars and other hazards. *Monty Male* features his Arthur Knight and his Flying Puke, and is a top game Monty from collecting gold from the dungeons maze. It's another Tony Corcoran spectacle.

So the disclaimer is 100 like to run a Graeme through my 64 before.

Normal competition rules apply.

The winners of August's *Microquest* competition are Simon Jeffrey of St Asaph, Caroline Bowerworth of Bayville High and Steve Corwell of Walsley Bank who will receive a commemorative certificate and memento which will enable the 64 to be linked to the Microquest network service.



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